

8 March 2019

Submitted via Auckland Council website

Application number: BUN60331144

Submission on Watercare Services Limited application: Army Bay Wastewater Treatment Reconsenting Project

This is a submission to Watercare Services Limited (Watercare) application for resource consent to discharge contaminants to the Coastal Marine Area in the Whangaparaoa Passage and to discharge contaminants to air from the Army Bay wastewater treatment plant with associated vegetation clearance and earthworks to enable future upgrades of the wastewater treatment plant. The application relates to the Coastal Marine Area and the site at 1535 Whangaparaoa Road, Army Bay.

ARPHS is not a trade competitor for the purposes of section 308B of the Resource Management Act 1991.

ARPHS wishes to be heard in support of this submission.

The following submission represents the views of the Auckland Regional Public Health Service (ARPHS) and does not necessarily reflect the views of the three District Health Boards it serves. Please refer to Appendix 1 for more information on ARPHS.

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Yours sincerely,



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Overview

1. The Auckland Regional Public Health Service (ARPHS) has reviewed the application and supporting material and is generally supportive of the resource consent applications by Watercare for discharges to the coastal marine area and to air, and land use for continuation and expansion of the Army Bay Waste Water Treatment Plant (AB-WWTP) on the Whangaparaoa Peninsula.
2. Public health concerns associated with the treatment of wastewater and discharge of treated wastewater effluent to the coastal marine area include adversely affecting water quality, contact recreational areas and food gathering sites. We also have concerns about management of incidents such as power failures and overflows.

Public health concerns

3. ARPHS is interested in the effective management of Auckland's wastewater and subsequent discharge of the treated effluent to the receiving environment. ARPHS' primary interest is in ensuring that public health is protected from risks of infectious disease resulting from direct or indirect exposure to pathogenic organisms in sewage, treated effluent and biosolids.
4. This interest is across the whole scope of wastewater management, including:
 - The effects of urban development and population increase on the volume and nature of wastewater;
 - Wastewater reticulation networks;
 - Design, capacity, construction and operation of wastewater treatment systems;
 - Effectiveness of treatment systems in reducing microbiological and nutrient load (including human pathogens);
 - Odour impacts;
 - Resilience of treatment plant infrastructure and operations (noting that the AB-WWTP is located at the eastern end of the Whangaparaoa Peninsula, and is dependent on long electricity lines and roads);
 - Impact of the effluent discharge on the receiving environment, including reducing risk of infectious disease resulting from recreational use of coastal waters, and impact of the discharge on non-commercial shellfish harvesting;
 - Emergency management (e.g. impacts of power failure, prolonged road closures, overflow management).
5. ARPHS also recognises the position of iwi concerning discharge of treated effluent directly to the coastal marine environment, as described in the application and Appendix M.

Disease Transmission Risk and Prevention

6. Preventing transmission of infectious diseases is the main purpose of sewage and wastewater treatment, and links with environmental protection. This is generally achieved by reducing pathogenic organism load through physical and biological treatment which removes or kills micro-organisms, and disinfection using UV (as at the AB-WWTP) or chlorination.
7. Diseases of concern for WWTPs with ocean discharges include gastroenteritis (primarily from viruses such as enteroviruses, and norovirus (which can accumulate in filter-feeding shellfish), but also bacteria which are able to survive in sea water such as *E coli* and *Vibrio*), viral respiratory infection (e.g. from adenoviruses) and skin and eye infections (either bacterial or viral). Exposure pathways of importance are through direct exposure (e.g. swimming), and through viral accumulation in shellfish.
8. While WWTPs are very effective at reducing bacterial load, removal of viruses is highly variable, as described in the AEE and quantitative microbiological risk assessment (QMRA).

Urban Development and Population Increase

9. ARPHS notes the need for expansion and upgrading of the sewage reticulation and treatment system in response to the large increase in population in the Whangaparaoa, Orewa, Silverdale, Wainui and Dairy Flat areas planned for in the Auckland Plan and Auckland Unitary Plan. The projections for approximately tripling wastewater volume over the 35 years of the consent are based on current water use patterns, which may change to some degree over time (e.g. if water-intense industries are established, or if household composition changes).

Preferred Option Selection and Wastewater Reticulation Networks

10. ARPHS notes Watercare's processes for selecting its preferred option of upgrading the Army Bay WWTP and reticulation network, rather than connection to the Rosedale WWTP. However, we do have a degree of concern that the location of the AB-WWTP means that it depends on limited electricity and road infrastructure, which can be vulnerable in severe storms.
11. While outside the scope of this resource consent application, ARPHS is concerned about the capacity and resilience of the wastewater reticulation system around the region. ARPHS is pleased to see the investment which Auckland Council and Watercare are making to improve the wastewater system, and the strategic approach proposed in its upcoming

regional water strategy. Extensive expansion and upgrading of reticulation infrastructure will be needed to meet population increases in the area supplied by the AB-WWTP.

Treatment Plant Design and Capacity

12. ARPHS has not been able to do a detailed technical assessment of the design and capacity of the proposed treatment plant upgrade. However, our initial assessment has not raised particular concerns. The improved effluent quality is welcomed, although this is more than offset by the increased effluent volume, resulting in higher total suspended solids, bacterial and nutrient discharge.
13. ARPHS supports the improved WWTP equipment and operations proposed during the transition period, which is expected to improve the quality of the existing discharge as well as future increased discharge. In particular, we note the proposed upgrade is intended to achieve a 4 log removal of indicator organisms.
14. We also note the increase in biosolid removal to landfill from three to eight trucks a day, which will need appropriate management.

Effluent Quality, Volume and Impact

15. ARPHS has not been able to undertake a detailed technical review of the QMRA, hydrology modelling or the ecological assessments. However, our initial assessment did not raise significant concerns about the methodology or analysis.
16. We note that the benthic ecology assessment concluded that the current discharge has not had a significant effect on heavy metals in sediments or the benthic community. Much of the heavy metals in the influent (which can come from road run-off) should be removed by the treatment process. However, the finding of low sediment levels is reassuring.
17. Protection of the AB-WWTP from trade waste contaminants needs to be actively managed, e.g. through the councils Trade Waste By-law implementation.
18. The QMRA provides useful information on the effectiveness of the current AB-WWTP and anticipated performance of the proposed expansion. The QMRA's finding of 1.2 to 2.5 log removal of specific viruses at the AB-WWTP is not out of line with other WWTPs, but it does mean that dispersion and dilution are important for achieving low human exposure to pathogens.
19. We note that the QMRA reports elevated risk of exposure from recreational water contact and consumption of shellfish in situations of complete WWTP failure, despite considerable dilution in the Whangaparaoa Passage. In the QMRA models, treatment above 2 log

removal of indicator organisms reduces risk to background levels. The aim for 3-4 log removal from the AB-WWTP is welcome. The consent conditions will need to include monitoring of water quality and shellfish microbiological assessment (e.g. for faecal indicator bacterial and viruses).

Odour management

20. ARPHS notes the odour assessment by CH2M Beca, which describes the current situation, lists the potential odour sources from each stage of the proposed treatment process, the potential effectiveness of proposed odour management methods, and assesses separation distances in relation to the Victoria EPA criteria. The report notes that there have not been odour complaints registered with Watercare or Auckland Council to date.
21. Consent conditions should include odour monitoring and contingency plans for odour management e.g. if parts of the treatment system become anaerobic or overflow.

Plant Resilience and Emergency Management

22. As previously noted, ARPHS does have some concerns that the location of the AB-WWTP at the end of the Whangaparaoa Peninsula means that it is at the “end of the line” for key services such as electricity and transport. Over the past few years there have been prolonged disruption of electricity supplies around the region during major storms. We see this as a significant risk for the AB-WWTP if it does not have an emergency power source.
23. The AEE should consider the environmental impacts and health risks of plant failure (e.g. from power failure or storms), or prolonged transport disruption, including risk of overflows and discharge of untreated or partly treated effluent.

Recommended decision

24. ARPHS supports Watercare’s proposal, and recommends that resource consents be granted for the application. Draft conditions have not been included in the consent application documents, and ARPHS will be interested to review these when they are available.
25. If consent is granted, ARPHS seeks assurances that any monitoring conditions reflect best practice.

Appendix 1 - Auckland Regional Public Health Service

Auckland Regional Public Health Service (ARPHS) provides public health services for the three district health boards (DHBs) in the Auckland region (Counties Manukau Health and Auckland and Waitemata District Health Boards).

ARPHS has a statutory obligation under the New Zealand Public Health and Disability Act 2000 to improve, promote and protect the health of people and communities in the Auckland region. The Medical Officer of Health has an enforcement and regulatory role under the Health Act 1956 and other legislative designations to protect the health of the community.

ARPHS' primary role is to improve population health. It actively seeks to influence any initiatives or proposals that may affect population health in the Auckland region to maximise their positive impact and minimise possible negative effects on population health.

The Auckland region faces a number of public health challenges through changing demographics, increasingly diverse communities, increasing incidence of lifestyle-related health conditions such as obesity and type 2 diabetes, infrastructure requirements, the balancing of transport needs, and the reconciliation of urban design and urban intensification issues.

