WATERCARE'S COMPREHENSIVE WASTEWATER NETWORK DISCHARGE PERMIT

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ABSTRACT

In June 2014 Watercare Services Limited was granted a comprehensive, 35 year wastewater network discharge permit authorising existing and future discharges (dry weather and wet weather overflows) from the majority of Auckland's public wastewater network. The permit authorises discharges from 7,700 km of wastewater pipes across Watercare's existing wastewater networks in Auckland's metropolitan area and the satellite townships to the North and South, and future extensions to those networks in known growth areas. The permit establishes a consistent set of consent conditions governing the operation and management of the existing networks inherited from legacy councils, and future extensions to those networks.

This paper discusses key steps in the consenting process and features of the consent, as well as the key lessons learnt.

KEYWORDS

Wastewater; urban reticulation and distribution; natural environment and resources.

1. INTRODUCTION

Following amalgamation of seven local network operators/territorial local authorities (LNOs) and the bulk water and wastewater service provider in the Auckland region in November 2010, Watercare became the largest wastewater infrastructure provider in New Zealand. Virtually overnight, Watercare changed from an organisation with 7 customers, one wastewater treatment plant and approximately 300km of trunk wastewater pipes, to one with approximately 430,000 customers, 18 wastewater treatment plants and approximately 7,700 km of public wastewater pipes.

Among the many challenges inherent in the integration process was the need to obtain a discharge consent for wastewater overflows from the network to achieve compliance with the Resource Management Act 1991 (**RMA**) and enable the efficient operation of the network with respect to regulatory requirements.

This paper outlines Watercare's starting position following amalgamation, the consenting strategy and subsequent development of customised tools to implement this strategy, and the key lessons leant from the ultimately successful consenting process.

Following approximately 2.5 years of preparation, Watercare lodged a consent application to authorise dry and wet weather overflows from its existing and future wastewater network in August 2013. Consent for a period of 35 years was granted by independent commissioners, on a non-notified basis, on 17 June 2014.

2. ISSUES AND CHALLENGES

When the Statutory Planning Team at the 'new' Watercare turned to the task of ensuring that the organisation operates in accordance with all legal and regulatory requirements, it found that the issues related to wastewater network discharges fell into four distinct categories:

(a) Legacy, meaning those inherited from the former LNOs:

Only two of the former LNOs (North Shore City Council and Manukau Water) had been able to obtain network discharge consents for their respective areas. The former Watercare (i.e. the supplier of bulk water and wastewater services to the LNOs) had also obtained some discharge consents for individual pump stations. However, consent conditions differed significantly across the network, creating considerable confusion and inefficiencies.

All other areas operated in accordance with consent applications lodged in 2001, to obtain legal protection under section 124 of the RMA. This provided no guidance as to applicable network management standards.

(b) Statutory framework related:

In general terms and with respect to discharges of contaminants (covered by section 15 of the Act), the RMA focuses on managing new discharges. For an established infrastructure provider seeking to consent existing discharges of an intermittent nature (i.e. wastewater overflows), this creates challenges with respect to assessing effects on the environment.

Some relevant sections of the applicable regional plans were not fully operative and had to be finalised while the application was being prepared.

(c) Operational, in terms of data/information availability and network management procedures:

The diverse nature and considerable size of the wastewater network in itself posed challenges. The network includes small networks servicing the satellite towns to the North and South of Auckland as well as the old combined and formerly combined system in older parts of the Auckland central area, and newer, separated systems in suburban Auckland. The application covered discharges at 756 existing engineered overflow points, as well as future discharges in known growth areas, at locations yet to be specified.

There were inconsistencies between data collection, asset management systems and maintenance procedures used for different part of the network. For some engineered overflow points on the network, there was no information held about the volume or frequency of overflows. Watercare's estimate was that approximately 15% of its 756 existing overflow points discharged more than twice per year on average.

(d) Long-term infrastructure planning

The consent application had to be developed with little information about the rate and location of future urban growth across Auckland.

Initially, Watercare had intended to proceed with the existing consent applications, which had all been on hold since 2001. However, in light of the issues identified above, the decision was made in mid-2011 to apply for an entirely new consent covering all wastewater networks in the Auckland region (both the metropolitan network and networks serving most of Auckland's satellite townships).

3. CONSENTING STRATEGY

Most of Watercare's predecessors had not been successful in obtaining network discharge consents. Taking the experience of its predecessors into account, Watercare's decided on a different consenting strategy, focusing on:

(a) Early engagement with the regulator (Auckland Council) to establish a positive working relationship. This included a 'no surprises' approach with open sharing of information and the provisions of three drafts for review by Council before the application was lodged. Regular meetings between Council and Watercare officers, supported by planning and engineering expertise from both parties, were held to ensure that the views and constraints of both parties were understood and discussed. Assisting the regulator to understand how wastewater networks operate was a key factor in the success of the consenting process.

(b) In-depth legal and planning assessment of the operative planning framework, and preparing an application that matched this framework and enabled the regulator to process the application on a non-notified basis. Under the regional plan, the application was for a restricted discretionary activity with a presumption of non-notification. However, the regional plan provided for notification of the application if special circumstances existed. Given the nature of the activity, namely the discharge of untreated wastewater, the Council sought assurance that non-notification would be appropriate (i.e. robust both in planning and legal terms). To this end, Watercare committed to iwi and wider stakeholder consultation both in preparing the application (so that the views of these parties could be reflected in the AEE and taken into account by the Council as consent authority), and on an ongoing basis.

(c) Developing customised tools to support the application and ongoing compliance with the consent, including a generic desktop-based approach to the assessment of environmental effects of wet weather overflows on a range of receiving environments;

(d) Developing a methodology to determine the Best Practicable Option (**BPO**) for specific scenarios covered by the consent;

(e) Developing process driven consent conditions that enable the consent to be a living/operational document, e.g. adopting the mechanism of a Wastewater Network Strategy (with 6 yearly reviews) that includes an improvement works programme;

(f) Recognising the ongoing role of the regulator through consent conditions that require Watercare to demonstrate and document that it is operating the network responsibly (e.g. Annual Network Performance Report) and the regulator to certify compliance (e.g. Wastewater Network Strategy reviews);

(g) Establishing a mechanism for authorising discharges from replacement overflow points in the existing network, and new overflow points in future networks.

4. OVERVIEW OF CONSENT

4.1 Area of application

The consent authorises discharges from the wastewater network under the control and management of Watercare throughout the Auckland region. It does not cover discharges from the local wastewater network in the former Papakura district owned by Watercare but operated by Veolia Water, or overflows from private wastewater networks not owned by Watercare.

The geographical extent of the consent is shown in Figure 1 and defined as follows:

- Wastewater discharges within the existing urban areas in Auckland (shown in maps attached to the consent) that are currently serviced by the existing network or may be serviced by a future extension to this network; and

- Wastewater discharges within the indicative future urban areas in Auckland (shown in the same maps) that are to be serviced by future networks.

The consent conditions can be regarded as covering four functional areas:

(a) The performance target (in terms of discharge frequency);

(b) Planning and design requirements;

(c) Operational requirements;

(d) Monitoring and reporting requirements.

4.2 Performance target

The key performance target for engineered overflows is set out in condition 9 of the consent:

The Consent Holder shall manage the existing network to achieve either:

a. an average of no more than two wet weather overflow events per engineered overflow point (listed in an attachment of the consent) per year as assessed by computer modelling or actual recorded performance; or

b. if (a) is not achieved for a particular engineered overflow point, the consent holder shall determine an alternative discharge frequency (ADF) for that engineered overflow point using the BPO methodology and (where appropriate) the methodology for prioritising catchments and wastewater network improvement works (both included as attachments of the consent).

The target of an average of two wet weather overflows per year is derived from Auckland Council's Auckland Plan, which under local government legislation is the paramount council planning document in Auckland. It also reflects the performance target for wet weather overflows set in Watercare's 2015-2018 Statement of Intent.

However, paragraph (b) of condition 9 recognises that for some engineered overflow points, predominantly those in the combined or formerly combined system, this performance target is not achievable. Where this is the case, Watercare can determine an alternative discharge frequency using the BPO methodology set out in an appendix to the consent. Under the RMA the BPO, in relation to a discharge of contaminants, means the best method for preventing or minimising the adverse effects on the environment having regard to—

- The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and

- The financial implications, and the effects on the environment, of that option when compared with other options; and

- The current state of technical knowledge and the likelihood that the option can be successfully applied.

The consent does not set a performance target based on discharge frequency for dry weather overflows (DWOs). Instead, it requires Watercare to manage the existing network so that dry weather overflows only occur as a result of network failure including breakages, blockages, third party damage and

mechanical or power failure at pump stations or storage facilities. To comply with the consent, DWOs must be minimised through application of appropriate operational practices.

4.3 Planning and design requirements

Under the terms of the consent, Watercare must prepare a Wastewater Network Strategy by 30 June 2017, and every 6 years after that. The purpose of this strategy is to:

- Review the classification of receiving environments[1] to ensure that the most sensitive of these continue to be recognised and appropriately managed;
- Update the description of current network performance, particularly with respect to discharge frequency;
- Describe the existing and anticipated network management issues, especially those related to urban growth pressures;
- Evaluate how the Wastewater Network Improvement Works Programme undertaken over the previous six years has resulted in improved compliance with the discharge frequency performance target;
- Set out the prioritised Wastewater Network Improvement Works Programme for the next six years.

The Wastewater Network Strategy must be submitted to the Council, who certifies that the Strategy has been developed in accordance with the process prescribed in the consent, i.e. the BPO methodology and the methodology for prioritising catchments and wastewater network improvement works. The consent allows for an independent reviewer to be appointed upon request by either party.

4.4 Operational Requirements

The consent conditions set out detailed operational requirements covering matters such as scheduled maintenance, monitoring and telemetry of pump stations that have the potential to overflow, regular inspection of assets, and investigations into the cause of repeat dry weather overflows (if any).

The conditions also require Watercare to minimise the adverse effects of overflows by responding in accordance with the Wastewater Overflow Regional Response Manual attached to the consent. This manual specifically requires:

- Watercare personnel to visit the engineered overflow point within 60 minutes of a dry weather overflow being reported (for 80% of reported dry weather overflows);
- Where numerous wet weather overflows or dry weather overflows occur simultaneously across the network, to prioritise responses based on (in order of importance), public health issues, the scale and significance of environmental effects, and the consequences of delay in visiting one engineered overflow point compared to another.

[1] To support the consent application and the ongoing implementation of the consent, Watercare developed a customised tool to assess public health and environmental effects, based on work undertaken by NIWA. The Methodology for the Assessment of Effects of Wet Weather Wastewater Overflows is a key part of the consent. It recognises seven specific receiving environments (for example small and large waterways, beaches/open coast, estuaries and wetlands) and classifies (Class 1, 2 or 3) these based on use to determine sensitivity. The methodology then considers the potential changes generated by wastewater overflows based on volume, and determines a likely effect category ranging from very low to very high. Following this assessment, a risk rating based on frequency is applied to provide the basis for prioritising wastewater network improvement works.

For dry weather overflows, a condition of consent requires overflows to be contained to prevent (or at least minimise) wastewater from entering water, clean-ups so that all visible residue is removed, and disinfection to prevent people coming into contact with wastewater or wastewater residue.

A key requirement of the consent is the need to establish an ongoing inflow and infiltration **(I&I)** programme to investigate the extent of I&I in the wastewater network, and identify where specific I&I remedial works are likely to reduce wastewater overflows.

4.5 Monitoring, Reporting and Consent Review

Apart from the 6-yearly Wastewater Network Strategy, the key reporting requirement is the Annual Wastewater Network Performance Report. This report must provide monitored (telemetry-based) performance data on wet weather overflows from engineered overflow points, reported dry weather overflows, and information about progress with wastewater network improvement works. The report must also provide an updated schedule of engineered overflow points, identifying where engineered overflow points have been added or decommissioned since the last report.

The consent contains a standard review clause allowing the Council to review consent conditions every five years in order to deal with significant adverse environmental effects that may arise from the exercise of the consent and that were not apparent at the time of granting of consent.

In addition, every 12 months the Council may review conditions to ensure that they adequately address adverse effects that are subject to specific conditions in new consents that have been transferred to Watercare and integrated into the comprehensive network consent. As noted above, new applications (which may be lodged by private developers seeking to construct additions to the local network, or Watercare to construct trunk infrastructure) will be required to authorise potential discharge form any additions to the wastewater network that are not located within the area covered by the consent. This review condition may be seen as the *quid pro quo* for the consent being flexible enough to allow Watercare to incorporate new discharge consents into the existing network consent.

5. OUTCOME

In June 2014 independent commissioners granted a 35 year consent on a non-notified basis. Non-notification represented a significant achievement from Watercare's perspective, given the sheer size of the consent and the potential health, social, environmental and cultural effects that could result from wastewater discharges. Notification could have resulted in a large number of submissions, a lengthy hearing process, and the possibility of appeals to the Environment Court, all of which would have prolonged the period under which Watercare operated under the legacy consents and the inconsistent requirements they imposed.

In their decision to grant consent, the independent commissioners appointed by Auckland Council noted in particular that:

- A fundamental consideration was that the consent would formalise and regulate the management of discharges from the existing wastewater network that were largely already occurring.
- It was preferable to deal with these discharges through a comprehensive integrated consent, rather than let the network continue to operate under the large number of different and in many cases significantly outdated consents. Also, some parts of the network were not subject to any consents.

- There was a variable state of knowledge and information about the operation of the network, with little information about the frequency of discharges or operational aspects of some engineered overflow points. Granting consent would result in a significant improvement in the information base and analysis of operation of the network.

- The introduction, through the consent, of a prioritisation process across the entire network, based on an agreed set of environmental and cultural parameters, was a far better approach than that provided by the (few existing) legacy council consents.

6. CONCLUSIONS

The consent is operationally focused and informs how capital investments to improve the network are to be prioritised.

In accordance with the RMA, the consent has only been able to authorise discharges from future networks within those future indicative areas circumscribed by the consent. Potential discharges (for example, from pump stations) in future sections of the network outside those boundaries will require a new consent application. However, provided that those consents are granted with the same or very similar conditions, they can be "gathered up" to become part of Auckland's comprehensive wastewater discharge permit.

Watercare has, through the process of applying for consent, established a constructive on-going relationship with the regulator (Auckland Council), and stakeholders such as Auckland Regional Public Health Service and iwi. These relationships will remain in place through the life of the consent, given the ongoing process of stakeholder (including iwi) engagement required in the preparation of the 6-yearly Wastewater Network Strategy.

As a responsible operator, Watercare considers that the process-orientated approach represents the best way forward for managing a large and diverse wastewater network subject to the significant and often opposing pressures of metropolitan and greenfield urban growth, and increasingly higher community and iwi expectations regarding public health and environmental protection.

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Figure 1: Geographical extent of Watercare's Comprehensive Wastewater Network Discharge Permit