

GROUP CONSULTATION FOR A WASTEWATER DISCHARGE CONSENT AVOIDS HEARING

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ABSTRACT

Waikato District Council reapplied for a Resource Consent to discharge treated municipal wastewater from the township of Te Kauwhata, situated in the Waikato region. The present discharge from the Wastewater Treatment Plant enters Lake Waikare which has extensive recreational use, is at the headwaters of the Whangamarino Wetland and is also a major component of the Lower Waikato River flood scheme. The Lake is in poor health, is very shallow and heavily impacted by farming activities.

From a cultural perspective Lake Waikare is significantly important to iwi who have traditional kaitiakitanga responsibilities for the mauri of the lake. Iwi and other submitters want the discharge removed from the lake.

Four years of consultation on the project culminated in the formation of the Te Kauwhata Consultation Group consisting of submitters and applicant who undertook to;

- i. Reach some form of agreement rather than having a decision imposed on them by a third party at a Hearing.
- ii. Find an acceptable technical and cultural solution to remove treated effluent discharge from the Lake which can be afforded by the community.
- iii. Broker a solution so that parties don't find themselves sitting around the same table in just a few years' time.

Agreement has finally been reached by all parties that consent for 15 years can be granted for the present discharge on the proviso that WDC commits to a programme of investigation towards the removal of the discharge from the Lake. WDC has also committed to spending \$45,000 per year towards mitigation planting-within the Lake Waikare catchment.

KEYWORDS

Wastewater, Discharge, Lake, Group Consultation, Council, Consent, Nitrogen, Phosphorus

1 INTRODUCTION

Te Kauwhata is a small rural township and has a population base of approximately 1100 people. The town itself is located in the lower Waikato region and is situated to the north of the regions largest Lake, Lake Waikare and to the south of the internationally recognised RAMSAR site the

Whangamarino wetland. The Waikato river, State highway 1 and the North Island Main trunk Line (NiMT) are all just to the west of the town.

Wastewater from the town is treated via two aerated lagoons fitted with an Aquamat system that was installed during a plant upgrade undertaken in 2006. This was the first New Zealand installation of the Aquamat system. The easiest way to describe the Aquamat is as a submerged "tennis" net of fine netting. This netting provides the surface area for the growth of biological organisms to treat the wastewater. The treatment plant is fitted with a phosphorus dosing plant, using ferric chloride, and a surface wetland and subsurface rockfilter as "polishing" prior to final discharge into an open channel that flows to Lake Waikare.

In addition to the local town discharge, the Te Kauwhata wastewater treatment plant also receives wastewater from the township of Rangiriri (approx. 40 m³/day) and Springhill Corrections facility, which is connected via a 12 km pipeline.

2 DISCHARGE CONSENT APPLICATION

In January 2008, Waikato District Council (WDC) applied to the Waikato Regional Council (WRC) for the renewal of the discharge consent for the Te Kauwhata Wastewater Treatment Plant (WWTP) to continue discharge of treated wastewater into Lake Waikare.

Waikato District Council had at the time, investigated several alternative methods for alternative disposal of wastewater from the Te Kauwhata WWTP. An Options Study was undertaken by Pattle Delamore Partners Ltd (PDP, 2007), to investigate at a 'desk-top' level the options available for disposal of treated wastewater from the WWTP, taking into consideration future growth in flows and mass loads. Such options as constructing large wetlands, land disposal in the hills to the east of the town and discharge into the Waikato River via rock seeps and infiltration beds were considered.

Prior to the new discharge application, an upgrade to the WWTP was undertaken in 2006 to accommodate the connection of the then new Springhill Corrections Facility. Conditions of the connection and upgrade had been placed on WDC by order of the Environment Court. Specific conditions were that mass loads of total kjeldahl nitrogen (TKN) and total phosphorus (TP) in the discharge were not allowed to increase due to the connection of the corrections facility. This meant that treatment improvements had to be made to the WWTP which were accomplished with the upgrade. Table 1 below indicates the present water quality of the WWTP discharge. The effects on Lake Waikare arising from the WWTP discharge were considered to be no more than minor.

An upgrade to make the phosphorus dosing plant a permanent fixture and a renewal of the rock media in the subsurface rock filter have been undertaken in the last 2 years.

Waikato District Council engaged PDP to prepare an Assessment of Environmental Effects (AEE) report to support the resource consent application to WRC for the renewal of the Resource Consent. The AEE was submitted within the regulation 6 months prior to the expiry (July 2008) of the existing consent so that the WWTP could continue discharge in pursuant to section 124 of the Resource Management Act 1991.

Table 1: Recent Treated Wastewater Quality¹

	Parameter²								
	Flow (ADF)	Flow (max)	cBOD ₅	Total Suspended Solids (TSS)	Total Nitrogen(TN)	Total Kjeldahl Nitrogen (TKN)	Total Phosphorous (TP)	Dissolved Reactive Phosphorous (DRP)	<i>E. coli</i>
July 2007– June 2008	490 ³	1901 ³	1.95	5.90	- ⁴	3.50	- ⁴	5.75	115
July 2008 – June 2009	492	1723	2.10 (5.33)	6.60 (8.89)	2.84 (6.26)	2.45 (6.06)	3.10 (4.19)	2.95 (4.25)	150 (344)
July 2009 – June 2010	554	1541	2.30 (3.23)	5.90 (10.20)	2.41 (6.99)	2.10 (2.97)	3.70 (4.36)	3.40 (3.98)	255 (442)
Proposed Consent Limits ⁵	1100	3600	10	15	8	6	5.8 at present reducing to 2.8 by year 2031	-	1500

Notes:

1. Data provided by WDC, as measured at the wetland / rock filter outlet. This is the point of discharge into Lake Waikare.
2. Median values given (except maximum flow), all concentrations are g/m³ except flows measured in m³/day and *E. coli* which is MPN/100ml. Where provided, values in brackets denote the 90th percentile as calculated by WDC.
3. Unclear from the data whether these are inflows or outflows.
4. Data not available.
5. Median values, see proposed consent conditions in Appendix A.

3 LAKE WAIKARE

Lake Waikare is the largest lake in the Lower Waikato region and is a vital part of the Lower Waikato-Waipā Flood Control Scheme. It provides a valuable flood storage role when the Waikato River is in flood. The Lake has a constructed outlet canal (known as Pungarehu Stream) at the northern end of the lake with a flood control gate to allow the lake to drain into the Whangamarino Wetland. During summer months there is, at times, no outflow from the lake for extended periods and this creates a closed system. A control gate has also been constructed on the Te Onetea Stream which can be opened to allow the Waikato River to discharge into the lake during normal/high river flow conditions. The main source for Lake Waikare is the Matahuru Stream which provides 41% of the inflows and has a significant agricultural community shown by data (Lake Waikare Management Options, EW internal report 2007/12) that indicates 53% TP and 60% TN entering Lake Waikare comes from the Matahuru Stream.

3.1 LAKE WAIKARE WATER QUALITY AND ECOLOGY

Lake Waikare is considered to be degraded in terms of water quality. The Lake typically exhibits high levels of turbidity, due to a high load of fine clay sediments. The Lake is shallow (Present maximum depth 1.8m) with a long fetch length which is frequently subject to wind which continually acts to re-suspend sediments. Mercury has been found in unusually high concentrations in sediment cores taken from the lake near the eastern shoreline (Environment Waikato, 2007).

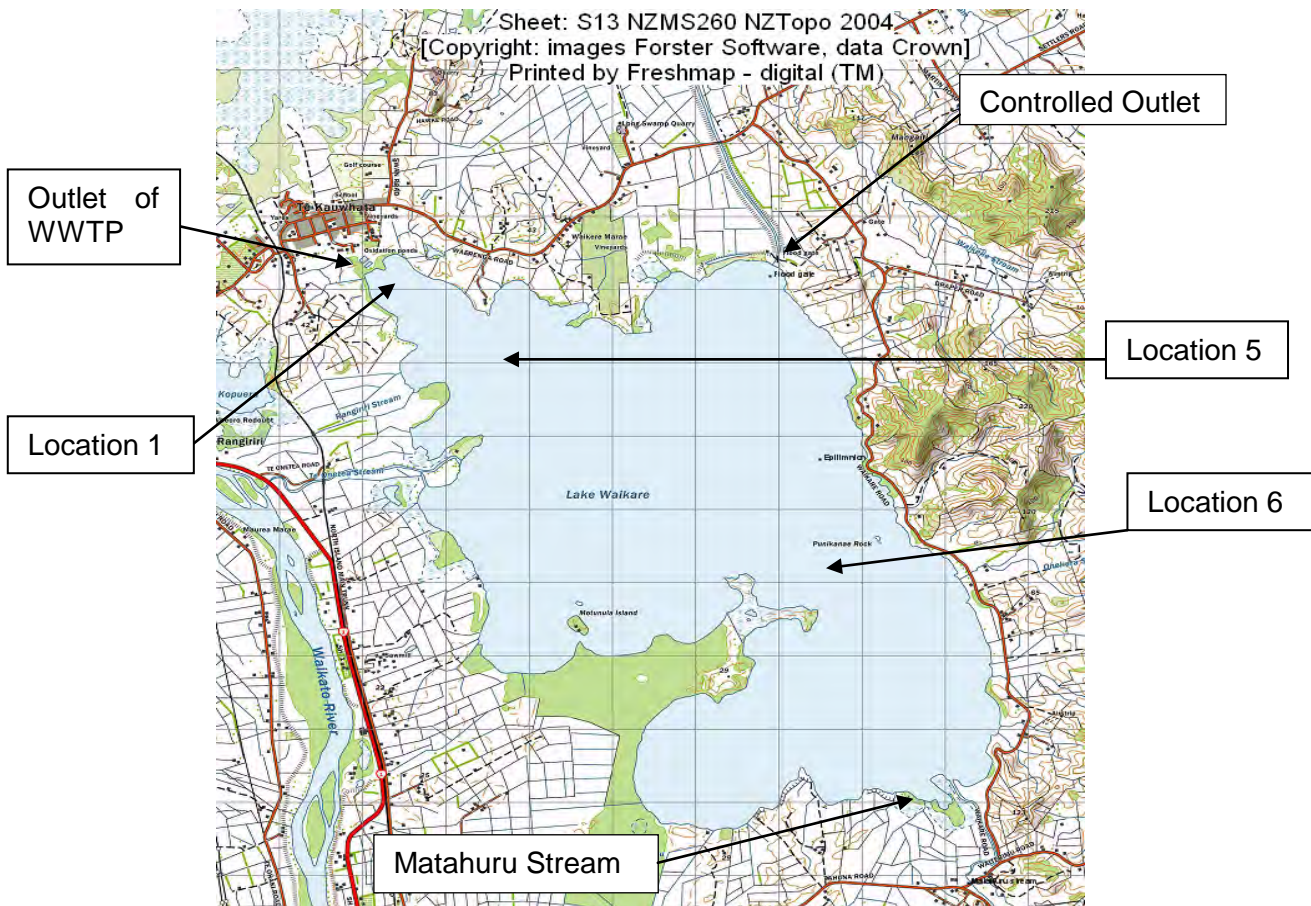
The submerged macrophyte community in Lake Waikare is thought to have collapsed between 1977 and 1978, and suspended sediments (and associated restriction in light penetration) are thought to be limiting the reestablishment of submerged plants in the Lake (Environment Waikato, 2007). Fish known to be present in the Lake are introduced Koi carp, Catfish and Ruddy. A much reduced eel fishery operates out of Te Kauwhata as well. Wetland areas previously surrounding the Lake has been converted to pasture over the years, resulting in a reduction of wildlife habitat and removal of the buffer protecting the lake, thereby exposing the lake directly to agricultural runoff and its associated water quality effects.

Lake Waikare has a hypertrophic nutrient status (Environment Waikato, 2007). The Lake Waikare Management Options report (Environment Waikato, 2007) states that the Te Kauwhata WWTP is contributing about 0.11% of the total inflow to Lake Waikare and about 6-10% and 1% of the annual mass loadings of total phosphorus (TP) and total nitrogen (TN) respectively. These percentages are small relative to the other main sources of nutrients (N&P) being discharged into the Lake such as the Matahuru and Te Onetea streams which collectively contribute 73% and 77% of the annual mass loadings of TP and TN respectively.

To assist with the consent renewal a water quality testing regime at the WWTP and within the Lake was undertaken to reassess the estimates of P & N. The regime, which went for 18 weeks in total collected data directly at the outlet of the WWTP, prior to flowing down the wetland channel that connects the WWTP with the Lake, and three other locations within the Lake. The locations of these sample points are shown in Figure 1. The results of the monitoring were commented on by Mr Bill Vant (WRC) and Mr Jim Cooke, director of Diffuse Sources water quality specialists.

Mr Vant and Mr Cooke, commented on the Lake Waikare WQ data collected by WDC (data collected and assessed during 2011) at the request of submitters for an independent assessment. The summation of their assessment, albeit tentatively, due to the small amount of data and other possible unmonitored contamination sources around the lake, indicated that the WWTP was having only a minor effect on Lake water quality. The assessment of the WDC data, which collected a total of 18 weeks data (only 15 data sets were available to Mr Vant and Mr Cooke at the time), indicated that total phosphorus (TP) contributed, conservatively, 3% to 8% of TP and 4% to 12% of TN of the water column within Lake Waikare. This would show, when compared to the previous steering group data that phosphorus has increased marginally and that nitrogen is holding steady. These percentages are concentrations and therefore the mass loads into the lake from the WWTP are still minor in relation to those from the Matahuru and surrounding lake margins based on an average daily flow from the WWTP of about 500 m³/day. The Matahuru Stream contributes approximately 160,000 m³/day.

Figure 1: Water Quality Monitoring Locations within Lake Waikare.



3.2 MITIGATION OPTIONS

In the 2007 Lake Waikare Steering Group report future management and enhancement options for Lake Waikare and its catchment were discussed (Environment Waikato, 2007). The report noted that removing the discharge from the Te Kauwhata WWTP, in itself, would not result in significant improvements to Lake water quality. Riparian management, including creation of riparian areas and fencing are noted to have moderate to high likelihood of success in improving water quality in the Lake and habitat value.

Councils' decision was to reapply to the WRC for continued discharge to Lake Waikare as this was the best practicable option and also allowed time for council to focus on higher priority projects and undertake assessment of options for removal from the lake based on the options provided by the PDP report (PDP, Options assessment report, 2007).

Mitigation methods were proposed to offset the WWTP input into the Lake and were seen as improving the overall quality of the lake as WDC viewed the WWTP inputs as minor compared to other inputs from the surrounding agricultural community. The main option put forward for mitigation was an extensive riparian planting programme to retire stock from pasture connected to waterways and reduce sediment laden runoff from entering the lake. However, there appeared to be little community support for this and it required an agreement from a third party (landowners) which made compliance to consent conditions untenable due to having to rely on a third party. WDC considered the use of public land for the planting but there was not enough land available and it would also have little benefit as the land did not actually reduce stock numbers from the Lake edge because it was not presently grazed. There is also considerable confusion about land ownership of marginal strips in the area. In 1981 recommendations were made to set the maximum water level within the lake, for the Lower Waikato flood control, at RL 5. 65 m. This level is more than 2 metres lower than the historical maximum for the lake level and approximately 1 metre lower than the historical average lake level. The permanent reduction in lake level opened up a considerable amount of land around the lake edges that was previously lake bed. Ownership of this land was ambiguous and local farmers have taken the opportunity over the years to use this land for additional grazing.

WDC were, in their opinion, looking for the best outcome for the lake and therefore felt that retiring grazed pasture from the lake fringes was the best way to reduce contaminants entering the lake. To this extent WDC have agreed to mitigation planting and water quality improvements by the way of supplying funds to the value of \$45,000 per year for each year the new consent is in place. The priority and focus of the projects was to be decided by the Te Kauwhata Consultation group each year

4 CONSULTATION AND THE TE KAUWHATA CONSULTATION GROUP

Various levels of consultation have occurred and continued since the formation of discharge options began in 2007. PDP undertook consultation with affected parties to hear their concerns and to show that the treatment from the WWTP had improved once some options had been investigated and their feasibility assessed. This included an information day in Te Kauwhata where the options and information was displayed. PDP and WDC staff discussed and explained the options and were available for questions. Feedback on the options was encouraged and a feedback form was used so that it could be accurately correlated and minimise any possible confrontation. The majority of attendees indicated their preference to have the discharge removed from the lake. It did not matter how much improved the discharge quality was. Another open day was held at the treatment plant to show the public how the Plant operated and what improvement had been made. Unfortunately only two people attended.

The discharge consent application was classified by WRC as non-complying and was publically notified. Nineteen submissions against the consent renewal were received from local residents and local groups such as; Fish and Game, Department of Conservation, WRC River and Catchment Services, Lake Waikare Care group, NZ National Wetland trust and several Iwi groups. One submission in support of the consent was received from Department of Corrections.

WDC had been aware that continued discharge to the Lake would be a challenge as the Springhill Corrections Facility connection had undergone a bitter environment court battle three years prior. WDC recognised that the ongoing discharge to the lake was not a long term option but needed time to complete higher priority projects.

Submitters were still adamant that the discharge should be removed from the Lake and that they were sceptical of WDC's high costs to remove the discharge. A prehearing meeting was held with all submitters invited. This meeting was held to relay to the submitters the level quality the WWTP had recently been producing, the mitigation WDC was offering and to assess the view of the submitters as there had not been a specific group meeting prior to this time. All prior meetings had been with individual submitters. The prehearing meeting indicated that WDC would have an uphill challenge at a consent hearing and view was from iwi was quite clear, no discharge to the lake.

Prior to the first scheduled consent hearing the submitters held a meeting amongst themselves. Feedback to WDC from that meeting indicated that a consensus had generally been reached. The consensus was that:

- The discharge from the Te Kauwhata wastewater treatment plant should be removed from Lake Waikare;
- The term of the consent sought should be no more than 8 – 10 years;
- There should be mitigation in respect of the effects the discharge has on Lake Waikare; and
- Monitoring was necessary.

WDC's response was that they supported the objective of removing the current discharge from Lake Waikare, but could only formally agree to that once there was a confirmed, sustainable long term replacement solution in place. This of course was one of the difficult issues due to the costs involved for various disposal options and the limited options available that meet iwi cultural requirements.

It was suggested by WDC that the hearing be postponed and that it would be very useful for all parties to begin a process of mutual engagement that would:

- 1) Enable each party to fully understand the issues that were important to the other parties and the reasons for these.
- 2) Allow for the sharing of all relevant information so that a common understanding of the information was available and its implications.
- 3) Allow a shared understanding of the available options for wastewater treatment and disposal, together with the costs, risks, and environmental and cultural effects of the various options.
- 4) Allow the opportunity to work together to identify and hopefully agree upon an affordable, ecologically sustainable and culturally appropriate option for the treatment and disposal of treated wastewater from Te Kauwhata.

- 5) Be a transparent process that would seek to reach a consensus outcome.

An initial round table discussion was held aimed at sharing respective issues of concern (see Point 1 above) and identifying a process to enable Points 2 – 5 to be worked through. From WDC's perspective, it was preferable to take the time to engage in this type of process, rather than commencing preparation for a resource consent hearing. This avoided having a third party (hearing members) dictate the outcome. From the initial meeting between the Council and the submitters the Te Kauwhata Consultation Group (TKCG) was formed.

This was very helpful for WDC as it galvanised the submitters issues and allowed for a consolidated, instead of a fragmented, approach by Council in attempting to mediate an agreement. In fact forming a consultation group as a form of self imposed mediation provided a far better forum than the resource consent hearing as it allowed dialogue, better understanding and room to cooperate.

Mr Jim Cooke, director of Diffuse Sources water quality specialists was approached as a qualified independent party to act as chairperson for the group. The TKCG held monthly or 2 monthly meetings in an attempt to negotiate terms that would be acceptable to all parties. WDC drafted a memorandum of understanding (MOU) and proposed consent conditions as well as a programme of investigations and a timeline for removal of the discharge from the Lake. The consultation group meetings continued for approximately 8 months where details of water quality, mitigation methods and costs and how to proceed with the removal of the discharge from the lake were reasonably openly discussed. Submitters main issues were;

1. Is the WWTP actually producing the water quality that it says it is?
2. If they (submitters) agreed to a consent, how could they be sure that WDC would keep their side of the agreement? What if an incoming Council reneged on the previous Council agreement. Then they would be fighting the same fight when the next consent expired,
3. What was the best way to provide mitigation for any ongoing WWTP discharge to the Lake,

The drafted MOU allowed a "form" of written agreement that would be attached to the Consent and in this way provided some security for the Submitters. Included with the MOU was a timeline that laid out a scope of works (with estimated time periods) for investigation of forms of land disposal that could be investigated during the period of the 15 year consent. Ongoing group consultation and investigation reports based on the works, would be required to be submitted to the consultation group, with the expected outcome being that an appropriate site and disposal option had been identified, if not commissioned and operational prior to the expiry of a new 15 year consent. So the agreement is a work in progress, set to last until the discharge is removed from the Lake but the Submitters needed some assurance prior to agreeing to allow any consent to be granted.

The agreement from the TKCG submitters is still in progress due to some minor points but Council is confident that signoff will be obtained.

Prior to the formation and agreement of the TKCG, Council was ready to concede that the only way forward was to go to a consent hearing as "traditional methods" of consultation had not produced any outcome that was acceptable to any party. There was no guarantee what the outcome of the consent hearing would be.

A lot of the previous consultation which had made no progress had been emotive and based on perceptions of the discharge's effect on the Lake. Such emotive context was put forward by several media releases such as from Fish and Game NZ published on-line (Lake Waikare wastewater discharge application, F&G NZ, 28 March 2008) with such quotes as "stop shitting in our lakes".

Other media releases followed over including a piece in the North Waikato News (Tony Stevens, North Waikato news, March 2011) stating that Peter Buckley (Northern Waikato –Hauraki constituency chairman) had said at a Te Kauwhata Community council meeting the Lake Waikare was "considered dead" and that nothing would be done to fix it. Mr Buckley said he had been advised this by the Department of Conservation, to which the community council were completely "aghast". All these media releases did nothing to make progress towards resolving issues related to the consent.

Emotion or not, the majority of people want the discharge removed from the Lake. Who would have to pay for the scheme? Waikato District Council has a district wide approach to rates. Targeted rates are used for specific services such as wastewater. The works required in Te Kauwhata would be funded by loan paid for through wastewater target rate. It would have been unaffordable for just the Te Kauwhata ratepayers to pay for the upgrade. The decision was made to have costs spread across the entire WDC region. This would work reasonably well if WDC did not have other communities in the same situation of requiring upgrades to essential services. This means that if the present cost spreading scheme was instituted then the cost of other community

service upgrades would then be included on the Te Kauwhata ratepayers and they would still be in the same situation.

In the end the consent hearing was postponed a total of 4 times.

5 CONCLUSIONS

The Te Kauwhata consent process has a multitude of complex issues and the conclusions that have been drawn are that;

1. Forming a consultation group is very beneficial for;
 - a. consolidating the consultation process,
 - b. providing neutral ground for discussions,
 - c. allowing for a resolution between parties that is not imposed by a third party.
2. A willingness to negotiate and compromise from both sides is needed,
3. The needs of the Community need to be considered,
4. The needs of the Council need to be considered as they represent the community,
5. Agreeable outcomes can be reached without going to a hearing.
6. An independent facilitator adds value
7. Scientific values do not align with cultural requirements and perceptions
8. Stakeholders can seem very entrenched but with informed discussion, sharing and recognition of concerns progress can be made.

ACKNOWLEDGEMENTS

The success of this project has only come about by the involvement and commitment from a number of people. People acknowledged for their contribution to this project include those from both the application team and those submitting against the application. We would like to thank, for a successful outcome;

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