

CONSENT MONITORING REPORT



Your Community Partner

Consent Name	Meremere Wastewater Treatment System
Consent No.	107031 - 107033
Year	2008-09
Date	7 October 2009
File No.	55 06 14M

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REPORT/COMMENTS

Meremere Wastewater Sewage Treatment Discharge 2008-2009

Resource consent 107031 authorises the Waikato District Council to discharge up to 480 cubic metres per day of treated domestic wastewater from the Meremere oxidation pond and wetland system to the Waikato River. The current consent came into effect August 2003.

The Meremere wastewater treatment system generally showed a continuing difficulty in meeting the discharge consent conditions. In addition the results show that maximum daily discharge volumes were exceeded regularly but especially in the winter months due to very heavy local rainfall and infiltration. During this period the North Island experienced significant and unusually heavy wet weather storm events that contributed to infiltration beyond the normal flow range of the treatment plant and also localised flooding into the WWTP wetland and the area surrounding the UV building. The maximum recorded daily total flow was 1994 m³/day in August 2008.

The maximum average monthly flow was 690 cubic metres per day over the total reporting period. The average monthly outflows for the reporting period are considerably higher than the previous period. The 90th percentile maximum flow was 1576 m³/day. The 90th percentile average daily flow was 600 m³/day. The median maximum daily flow was 487 m³/day. The median average daily flow was 253 cubic metres per day over the reporting period.

Summary of discharge quality to Waikato River

The Meremere sewage wastewater treatment system generally showed a slight improvement in environmental performance during the 2009-2010 year when compared to that of 2008-2009. An ongoing sampling programme has indicated that environmental compliance with the water quality parameters in the discharge was not achieved. The non-compliances associated with the consent included:

Compliant TKN

Median value was compliant at ~~12.9~~ 9 g/m³, down from 12 g/m³ in the previous period. The 90th Percentile value was compliant at ~~15.8-12.8~~ 12.8 g/m³, down from 15.8 g/m³ in the previous period. Mean ~~12.5-9.3~~ 9.3 g/m³. Maximum recorded value was ~~20.13~~ 13 g/m³ ~~Mar 08-November 2008 & April 2009~~.

Compliant Total Ammonia

The median value was ~~0.365~~-2.45 g/m³, up from 0.4 g/m³ in 2007-2008. The 90th Percentile value was ~~13.6~~-5.06 g/m³, down from 13.6 g/m³ in 2007-2008. Mean ~~3.9~~-2.85 g/m³. Maximum recorded value was ~~14.12~~ g/m³ ~~Jul-07~~November 2008.

Compliant TP

The median value was compliant at ~~12~~-3.5 g/m³, down from 3.8 g/m³ in 2007-2008. The 90th Percentile value was compliant at ~~7.3~~-5.59 g/m³, down from 7.3 g/m³ in 2007-2008. Mean ~~4.4~~-3.45 g/m³. Maximum recorded value was ~~7.9~~-6.3 g/m³ ~~Feb-08~~ April 2009.

Non-compliant BOD

The median value was 16 g/m³, unchanged from the previous period. The 90th Percentile value was ~~26~~ 29.7 g/m³, slightly increased from 2007-2008. Mean ~~19.1~~ 16.7 g/m³. Maximum recorded value was 33 g/m³ ~~Oct-07~~ December 2008.

Non-compliant SS

The median value was ~~93~~ 61 g/m³, down from 93 g/m³ in 2007-2008. The 90th Percentile value was ~~248~~ 129 g/m³, down from 248 g/m³ in 2007-2008. Minimum ~~7~~ 21 g/m³. Mean ~~120~~ 66.9 g/m³. Maximum recorded value was ~~280~~ 130 g/m³ ~~Mar-08~~ January and April 2009.

~~High suspended solids were associated with extensive cover of the WWTP ponds by algal bloom.~~

Non-compliant E Coli

The median value was ~~405~~ 1800 MPN/100mL, up from 405 in 2007-2008. The 90th Percentile value was ~~120000~~-16000 MPN/100mL, down from 120600 MPN/100mL in 2007-2008. Mean ~~50000~~ 6633 MPN/100mL. Maximum recorded value was ~~360000~~ 25000 MPN/100mL ~~Mar-08~~ June 2009.

~~High E Coli were associated with extensive cover of the WWTP ponds by algal bloom reducing UV effectiveness~~

Non-compliant Faecal Coliforms

This was an improvement on the previous period. The median value was ~~405~~ 6500 MPN/100mL, up from 560 in 2007-2008. The 90th Percentile value was ~~73500~~ 20500 MPN/100mL, down from 73500 MPN/100mL in 2007-2008. Maximum ~~Mean 50000~~ MPN/100mL

- ~~Maximum recorded value was 420000-26000~~ MPN/100mL ~~Mar-08~~ June 2009.

The Waikato District Council has engaged the consultant involved in the Te Kauwhata, Raglan, Huntly and Ngaruawahia WWTP upgrades to develop an upgrade plan to achieve treatment requirements and compliance with the conditions of consent. The project to implement upgrade plans is scheduled for start in the 2009-2010 period.

Summary of Nutrient load discharged to Waikato River

Total Nitrogen

The 90th Percentile value was 6.59 kg/day. Median value for the 2008/2009 year was 2.80 kg/day. Maximum recorded monthly total was 7.15 kg/day in June 2008. Minimum 1.82 kg/day in January 2009. Mean 3.61 kg/day

Total Phosphorous

The 90th Percentile value was 1.21 kg/day. Median value for the 2008/2009 year was 0.88 kg/day. Maximum recorded monthly total was 1.71 kg/day in June 2008. Minimum 0.24 kg/day in September 2008. Mean 0.90 kg/day.

Summary of Treatment Issues and Improvement Plans

The results for this year are slightly down on the previous period in some nutrient areas. However the current system is still not operating to its full potential in a number of areas and some of these will be addressed in the upcoming period.

- The system is incapable of accepting the influent flows and regularly floods, the rockfilter wetland and immediate surroundings during wet weather. The upgrade plan intends a control valve system to retain volume in the main treatment pond. Ongoing efforts to find and eliminate sites of infiltration are continuing.
- The normal flows regularly exceed the discharge limits so it is not possible to meet the consent conditions. An inflow magnetic flowmeter has been installed and in the upgrade plan this will be linked to the Datran system. In the meantime we will manually read the totaliser records during normal operation site visits. The Waikato District Council will apply for changes to the discharge consent conditions.
- The records show the UV system having very little improvement in the final bacteriological results. The project design will attempt to reduce the suspended solids loading to the UV reactor to increase the performance to meet discharge conditions. During the reporting period the UV equipment has received a number of service visits by the manufacturer's representative. The representative has changed several times but in recent months has become Davey Water Products (formerly Contamination Control) who are a substantial and experienced supplier of ultraviolet sterilisation products. Their visits to our site have given confidence that the product should be able to achieve the desired outcomes if we can improve the influent quality.
- The wetland rockfilter presently provides limited treatment due to the small size and flow inefficiencies. The small holding pond on the end of the rockfilter has tended to have a very high algal loading and records indicate it is subject to lower temperatures than observed elsewhere, possibly as it is shallow and smaller in volume than other wetlands managed by the Waikato District Council. The design improvements of the wetland and final holding pond are not fully complete at this stage of the upgrade project plan.
- The telemetry recording from this site has not been reliably successful. In the 2009-2010 period WDC will conduct an investigation of limitations and problems with the

entire telemetry system. The following year funds have been provided to upgrade the system so as to improve reliability and reporting.

- WDC sought further advice from the process designer Gilles Altner from G2e and have received an improvement plan that will be utilised in the upcoming project.

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