

Consent Name	Meremere Wastewater Treatment System
Consent No.	105031 & 105032
Year	1 July 2013 – 30 June 2014
Date	30 September 2014

MEREMERE WASTEWATER TREATMENT SYSTEM

ANNUAL REPORT 2013 - 2014

RC 105031 & RC 105032

The Waikato District Council (WDC) holds the above resource consent associated with the treatment and discharge of wastewater from the Meremere wastewater treatment plant (WWTP) to the Waikato River. The current consent came into effect August 2003 and expires August 2018.

The consent conditions issued by Waikato Regional Council include the following:

- 105031 Discharge up to 480m³ per day of treated wastewater to the Waikato River with an average dry weather flow not exceeding 160m³ per day.
- 105032 The treatment & discharge of effluent will not produce an objectionable or offensive odour at or beyond the outer boundary of the WWTP.

Discharge outside of consented hours occurred in five 24 hour cycles during the reporting period. Reasons for this include system testing and contingent discharge of treated wastewater in rain events. These contingent discharges occur to avoid overtopping of raw wastewater from the oxidation pond.

Discharge flows exceeded the resource consent limits in four 24 hour cycles during the reporting period, again in relation to rain events.

The quality of discharge continues to be inadequate for both TSS and cBOD₅. WDC are working on a programme to address the suspended solids issues which should go some way in also resolving the cBOD₅ compliance issues.

TSS

There are several initiatives underway to investigate how the TSS compliance can be improved.

The first improvement initiative being investigated is diverting the UV start-up recycle flow to the oxidation pond instead of discharging the flow back into the storage pond. The recycle discharge to

the storage pond stirs up the sediment on the pond floor. The sediment then enters the river discharge. The mixing of the sediment is greater when the pond level is low.

Further investigations include:

- Jar tests have been carried out to determine whether dosing with coagulants and flocculants would make a gravity settlement process effective at removing solids from the effluent. The initial test results show some promise and further testing is being carried out.
- Identifying whether the storage pond sludge is accumulating in the pond and then discharging to the UV system via the storage pond outlet pipe. The sludge level is being monitored.
- Establishing whether dispersive clays are entering the pond via the inlet and/or the oxidation pond embankment.

cBOD₅

The 2013/14 median for cBOD₅ was 15.5g/m³, that only just exceeded the median consent limit of 15.0g/m³. The initiatives for improving the discharge TSS should also improve the discharge cBOD₅ result and achieve TSS compliance. The basis for this assumption is that a portion of the TSS will have a BOD component.

TKN

The 2013/14 median for TKN was 12.0g/m³. That falls just inside the limit. To comply with the consent limit the TKN concentration must be equal or less than 12.0g/m³. The initiatives for improving the discharge TSS should also improve the discharge TKN compliance. The basis for this assumption is that a portion of the TSS will have an organic nitrogen component.

OPERATIONAL COMMENTS

Staff Maintenance Visits: An operations staff member visits the site at least twice a week.

FUTURE WORKS

An Infiltration Management Plan for this plant is near completion which will provide the basis for infiltration repairs and / or upgrade to the Meremere network in 2015 /16.

Council are currently writing a 50 Year Wastewater Strategy which will consider long-term options for this treatment plant.

.....
Mark Curtis
TREATMENT & OPERATIONS

.....
Martin Mould
TEAM LEADER WATERS MANAGER

DATA SUMMARY		JULY 2013 - JUNE 2014		RC 105031 - Meremere WWTP	
Out Flow Summary		Daily	-	480m3	
		ADWF	-	160m3	
Average Daily OutFlow				157	
Max Daily OutFlow				1,678	
Average Monthly Total				4,695	
Max Monthly Total				10,342	
Annual OutFlowTotal				56,343	
<i>Max daily outflow exceeded consent limit in 4 x 24 hour periods. 4 days of flow data missing.</i>					
Monthly Discharge to Waikato River		Consent Limit		Compliance	
		Median	90 Percentile	Median	90 Percentile
pH Between 6 & 9				7.6	0 / 10
TKN	g/cum	12	15	12.0	1 / 10
Ammoniacal Nitrogen	g/cum	8	10	2.9	0 / 10
Total Phosphorous	g/cum	5	7	3.3	0 / 10
cBOD5	g/cum	15	20	15.5	1 / 10
Suspended Solids	g/cum	20	30	99.5	10 / 10
E-Coli	MPN/100ml	3500	17000	500	1 / 10

The median of each parameter shall be calculated from the preceding 10 samples taken at the relevant river flow. Compliance with the ninety percentile discharge quality standard shall be determined by not more than one sample result in the preceding ten sample results at the relevant river flow being above the stated limit.

Compliance with the discharge quality conditions are summarized in the above table within the Compliance column. The measurement stated in the Compliance column cell indicates the number of test results exceeding the 90th percentile limit. The shading in the Compliance column cells indicates the state of compliance for each parameter; if the cell is shaded green the parameter is compliant, if the cell is shaded red the parameter is non-compliant.

EVENT SUMMARY		JULY 2013 - JUNE 2014	RC 105031 – Meremere WWTP
June 2014	UV failure for 9.53 hours, total discharge of 662.4m ³ without UV treatment. E.coli sample came back with a result of 19,863 cfu/100mL.		
June 2014	There were several plant discharges to the river outside the consented periods due to rain events		
COMPLAINTS SUMMARY		JULY 2013 - JUNE 2014	RC 105031 – Meremere WWTP
	NIL complaints for the reporting period.		

CONSENT SUMMARY **July 2013 - June 2014** **RC 105031 – Meremere WWTP**

The Meremere Wastewater Treatment Plant is expected to operate in compliance with the conditions of Resource Consent 105031 and 105032. Important matters to note and non-compliances are detailed below against the corresponding consent condition.

A summary of results are included in the spreadsheet above and a summary of key matters are included in the cover letter.

Conditions Comments	
4	<p><i>The consent holder shall ensure that contractors are made aware of the conditions of this resource consent and ensure compliance with those conditions.</i></p> <ul style="list-style-type: none"> • All contractors employed at the treatment site are inducted in both health and safety procedures and relevant conditions of this consent.
6	<p><i>The tertiary treatment constructed subsurface flow wetland (planted rock filter) shall be constructed and maintained as agreed.</i></p> <ul style="list-style-type: none"> • Plantings are now well established. The vegetative cover on the subsurface flow rock filter wetland was maintained as best as practicable and good growth in plant size has continued. • The wetland rock filter generally improves the discharge values slightly.
8	<p><i>The consent holder shall ensure that the oxidation pond banks are maintained to a good working standard, carrying out six monthly visual inspections and keeping a record of maintenance that is undertaken on the pond banks and liner.</i></p> <ul style="list-style-type: none"> • Maintenance work to the oxidation pond banks is carried out as and where necessary. • Routine maintenance checks are carried out on the wastewater system and any problems noted. • Site visits were undertaken at least fortnightly through the reporting period. • Details of faults and any work carried out are recorded in the plant log on site.

12	<p>The maximum volume of treated wastewater discharged shall not exceed 480 cubic metres in any 24-hour period and the average dry weather flow shall be maintained at a level not exceeding 160 cubic metres per day.</p> <ul style="list-style-type: none"> • Please see the Data Summary above. • The maximum consent of 480m³ was exceeded on 4 days during this reporting period. • The median ADWF was 81m³* (See Huntly consent for calculation method). 																								
13	<p>The time of discharge shall be limited to the period between 10pm and 5am the following day.</p> <ul style="list-style-type: none"> • Generally this condition was met except on 5 periods when discharge proceeded outside of consented hours. <ul style="list-style-type: none"> ▪ One occasion was due to system testing which required discharge outside of consent hours for a total time of 68mins and 48m³. ▪ The other 4 occasions were due to rain events which meant that the system was at a high risk in terms of overtopping raw wastewater from the oxidation pond. As a contingency measure treated wastewater is discharged outside of consent hours. • Interested parties were notified of any exceedance of discharge conditions. 																								
15	<p>The consent holder shall ensure that the quality of the discharge prior to entering the Waikato River is equal to or less than the concentrations outlined in the table below following the installation and commissioning of the wetland and the baffling of the oxidation pond at the treatment plant, or until six months after the commencement of this consent, whichever occurs first, as follows:</p> <table border="1" data-bbox="228 1052 1481 1486"> <thead> <tr> <th>Parameter</th> <th>Median Discharge Quality (g/m³)</th> <th>90 Percentile Discharge Quality (g/m³)</th> </tr> </thead> <tbody> <tr> <td>Total Kjeldahl Nitrogen</td> <td>12</td> <td>15</td> </tr> <tr> <td>Ammoniacal Nitrogen</td> <td>8</td> <td>10</td> </tr> <tr> <td>Total Phosphorus</td> <td>5</td> <td>7</td> </tr> <tr> <td>Biochemical Oxygen Demand</td> <td>15</td> <td>20</td> </tr> <tr> <td>Suspended Solids</td> <td>20</td> <td>30</td> </tr> <tr> <th>Parameter</th> <th>Median Discharge Quality (MPN/100ml)</th> <th>90 Percentile Discharge Quality (MPN/100ml)</th> </tr> <tr> <td>Escherichia coli</td> <td>3500</td> <td>17000</td> </tr> </tbody> </table> <p>The median of each parameter shall be calculated from the preceding 10 samples taken at the relevant river flow. Compliance with the ninety percentile discharge quality standard shall be determined by not more than one sample result in the preceding ten sample results at the relevant river flow being above the stated limit.</p> <ul style="list-style-type: none"> • Please see the Data Summary above. • WRC has confirmed that “...at the relevant river flow...” in this condition is a carry-over from previous consents and is no longer required for assessment. • The quality of discharge continues to be inadequate for total kjeldahl nitrogen, biological oxygen demand and suspended solids with related compliance targets particularly hard to meet. 	Parameter	Median Discharge Quality (g/m ³)	90 Percentile Discharge Quality (g/m ³)	Total Kjeldahl Nitrogen	12	15	Ammoniacal Nitrogen	8	10	Total Phosphorus	5	7	Biochemical Oxygen Demand	15	20	Suspended Solids	20	30	Parameter	Median Discharge Quality (MPN/100ml)	90 Percentile Discharge Quality (MPN/100ml)	Escherichia coli	3500	17000
Parameter	Median Discharge Quality (g/m ³)	90 Percentile Discharge Quality (g/m ³)																							
Total Kjeldahl Nitrogen	12	15																							
Ammoniacal Nitrogen	8	10																							
Total Phosphorus	5	7																							
Biochemical Oxygen Demand	15	20																							
Suspended Solids	20	30																							
Parameter	Median Discharge Quality (MPN/100ml)	90 Percentile Discharge Quality (MPN/100ml)																							
Escherichia coli	3500	17000																							

	<ul style="list-style-type: none"> WDC are working on a programme to address the suspended solids issues which should go some way in also resolving the TKN and cBOD compliance issues.
16	<p><i>Notwithstanding the stated limits in conditions 14 and 15 of this consent, the consent holder shall make all reasonable and practical efforts to ensure that the final effluent quality is maximised within the capabilities of the treatment system in operation.</i></p> <ul style="list-style-type: none"> WDC has made significant investment targeting improvement the quality of final effluent. High inflows during wet weather and non settling solids are the main contributors to non-compliant results.
17	<p><i>The consent holder shall ensure that after reasonable mixing the discharge does not cause any of the following effects in the Waikato River:</i></p> <p>(a) <i>The production of any conspicuous oil or grease films, scums, foams, or floatable or suspended materials.</i></p> <p>(b) <i>Any conspicuous change in the colour or visual clarity.</i></p> <p>(c) <i>Any emission of objectionable odour.</i></p> <p>(d) <i>The rendering of fresh water unsuitable for consumption by farm animals.</i></p> <p>(e) <i>Any significant adverse effects on aquatic life.</i></p> <ul style="list-style-type: none"> There are nil observations recorded on regular inspection sheets which indicate non-compliance with this condition.
18	<p><i>The consent holder shall undertake sampling and analysis of the inflow and treated effluent.</i></p> <ul style="list-style-type: none"> The discharge flow and pump hours are measured via Datran and recorded manually. UV intensity is trended on the telemetry screens. Please see the Data Summary above.
20	<p><i>The consent holder shall provide to the Waikato Regional Council, Watercare Services Limited, Ngati Naho Co-operative Society and Mercer Rowing Club Incorporated a written monitoring report by 30 September each year that this consent is current.</i></p> <ul style="list-style-type: none"> This report is submitted in compliance with this condition.
21	<p><i>The consent holder shall notify parties as soon as practicable and as a minimum requirement - within 48 hours of the consent holder becoming aware of the limits specified in condition 11 and 12 of this consent being exceeded.</i></p> <ul style="list-style-type: none"> All parties specified were advised of cases where discharges occurred outside hours and limits.
22	<p><i>The consent holder shall notify parties as soon as practicable and as a minimum requirement within 24 hours of any accidental discharge, plant breakdown, or other circumstances which are likely to result in the limits of this consent being exceeded.</i></p> <ul style="list-style-type: none"> All parties specified were advised of cases where discharges occurred outside hours and limits.

23	<p><i>The consent holder shall, within 7 days of any incident specified in conditions 21 and 22 occurring, provide a written report to the Waikato Regional Council, Watercare Services Limited, Ngati Naho Co-operative Society and Mercer Rowing Club Incorporated identifying the exceedance, possible causes, steps undertaken to remedy the effects of the incident and measures that will be undertaken to ensure future compliance.</i></p> <p>Waikato Regional Council were been advised of all instances of major non-compliance.</p>
25	<p><i>The consent holder shall maintain and keep a Complaints Register.</i></p> <ul style="list-style-type: none"> • Council's CRM database records all complaints from the public. There were no complaints from the public during the consent year regarding the Meremere WWTP.

RC 105032: To discharge incidental odour contaminants to air from a wastewater treatment plant comprising an oxidation pond and wetland rock filter.

Conditions Comments	
4 -5	<p><i>The operation of the sewage treatment plant shall be carried out in such a way that the potential for odours is kept to a practicable minimum. The treatment and discharge of effluent shall be undertaken in such a manner that they do not produce an objectionable or offensive odour at or beyond the outer boundary of the land designated for sewage treatment and disposal.</i></p> <ul style="list-style-type: none"> • Nil complaints with respect to the treatment plant have been received by the Waikato District Council during the 2012-13 period.
6 - 7	<p><i>The Consent Holder shall maintain and keep a complaints register for all odour complaints.</i></p> <ul style="list-style-type: none"> • Council's CRM database records all complaints from the public. There were no complaints from the public during the consent year regarding the Meremere WWTP.