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| Consent Name | Raglan Wastewater Treatment System |
| Resource Consent | 971390 |
| Year | 1 July 2013 – 30 June 2014 |
| Date | 30 September 2014 |

RAGLAN WASTEWATER TREATMENT SYSTEM

ANNUAL REPORT 2013 - 2014

RC 971390, 971391 & 971392

The Waikato District Council (WDC) holds the above resource consent associated with the treatment and discharge of wastewater from the Raglan wastewater treatment plant (WWTP) to the Raglan Harbour. The consent was issued on February 2005 and has an expiry date of February 2020.

The conditions issued by Waikato Regional Council include the following:

971390 To discharge up to 2,600m³ per day of treated wastewater from the plant after treatment subject to a number of conditions.

The average daily discharge of treated effluent was 1,031m³ over the reporting period.

A review of the monitoring results during the 2013-14 reporting year indicates good performance in terms of bacteriological treatment.

However the compliance requirement for suspended solids (TSS) is not being met and the reasons for the high TSS in the final pond discharge are currently being investigated. The focus is on the final effluent pond because the TSS in the final Aquamat pond discharge is not high and usually within the final effluent compliance limits.

The storage pond produces algae during the warmer months and that will affect the final effluent TSS result. However, test results suggest an alternative source based on the final effluent cBOD₅/TSS concentration ratio. If the main source of TSS was from algae growth in the storage pond the ratio would be much higher, hence other sources of TSS contamination are being investigated.

The investigations will determine whether sediment and/or detritus from the final pond is passing through the rock filter to the outlet.

OPERATIONAL COMMENTS

Septage Receiver: Not yet commissioned.

Main Stepping Screen & Inlet: No issues to report.

Aerators: The aeration system has been performing satisfactorily.

Anaerobic Ponds: Not in service.

Oxidation Ponds: The Aquamat system has been performing satisfactorily.

UV System: UV system overheated leading to several lamps failures. Lamps were replaced.

Staff Maintenance Visits: Site visits are carried out twice weekly.

FUTURE WORKS

The issue of the June 2013 storage pond overflow resulted in a financial penalty during 2013/14 along with a full review of WDC systems and processes.

An extensive upgrade of the SCADA system is currently under way and has been fast tracked for a completion date of December 2014.

WDC developed an Operational Improvement Implementation Plan which targets standard processes and procedures as well as core plant operational & treatment matters.

| | Phase 1: 2014-15 | Phase 2: 2015-16 | Phase 3: 2016-17 (On-going Tasks) |
|-------------------------|---|---|--|
| Raglan WWTP Task | Bring Anaerobic ponds into operation (risk of odour requiring capital works). Cost: \$50k | If successful capital project to line Anaerobic ponds. Cost: \$150k | |
| | Aerobic Ponds improve aeration, install instrumentation and review operations. Cost: \$90k | Sludge removal programme. Cost: \$65k | |
| | Final storage pond, investigation into Algae issues and capacity. Cost: \$15k | Capital project to address Algae (Floating wetland or cover). Cost: \$300k | Capital project to improve capacity. Cost: \$250k |
| | UV System increase pumping capacity. Cost: \$20k | | |

It is intended that initial works will focus on:

- the review and re-introduction of the stage one anaerobic ponds to enhance aerobic pond performance,
- improve instrumentation and control within the aerobic ponds, and
- improve maintenance activities.

Success from these actions should improve final effluent quality and improve overall treatment expectations.



Mark Curtis
TREATMENT & OPERATIONS TEAM LEADER



Martin Mould
WATERS MANAGER

DATA SUMMARY

July 2013 - June 2014

RC 971390 - Raglan WWTP

In Flow Summary

m3

| | |
|-----------------------|-----------------|
| Average Daily InFlow | Incomplete Data |
| Max Daily InFlow | 4165 |
| Average Monthly Total | Incomplete Data |
| Max Monthly Total | 43,753 |
| Annual Inflow Total | Incomplete Data |

Out Flow Summary

Consent Limit = 2,600m3

| | | |
|-----------------------|---------|----------------------------|
| Average Daily OutFlow | 1,031 | |
| Max Daily OutFlow | 2,602 | See comment in Condition 8 |
| Average Monthly Total | 30,750 | |
| Max Monthly Total | 49,000 | |
| Annual OutflowTotal | 368,997 | |

Monthly Discharge to Raglan Harbour

Consent Limit

Compliance

| Parameter | | Consent Limit | | Compliance | |
|---------------------------|---------------|---------------|---------------|------------|---------------|
| | | Median | 90 Percentile | Median | 90 Percentile |
| Suspended Solids | g/cum | 20 | 30 | 9 / 12 | 7 / 10 |
| cBOD5 | g/cum | 10 | 20 | 2 / 12 | 0 / 10 |
| Faecal Coliforms | count / 100mL | 14 | 43 | 1 / 12 | 1 / 10 |
| Enterococci (summer only) | count/100mL | 35 | | 0 / 6 | n/a |

To determine compliance with the median limits (except enterococci), no more than six samples in any 12 consecutive monthly samples over the period 1 July to 30 June each year shall exceed the specified median limit.

To determine compliance with the median enterococci limit, no more than one sample of six consecutive weekly samples shall exceed the specified limit.

To determine compliance with the 90th percentile limits, no more than one sample in any ten consecutive monthly sampling events shall exceed the specified limit.

Compliance with the discharge quality conditions are summarized in the table above, within the Compliance column. The measurement stated in the Compliance column cell indicates the number of test results exceeding the median or 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 | RAGLAN WWTP |
|---------------------------|---|------------------------------|--------------------|
| Feb 2014 | UV system overheated leading to several lamps failures. Lamps were replaced. | | |
| COMPLAINTS SUMMARY | | JULY 2013 - JUNE 2014 | RAGLAN WWTP |
| April 2014 | Neighbouring farmer was concerned about land movement on a couple of slopes adjacent to the Raglan ponds. A preliminary investigation has been undertaken. Further geotech investigations are underway. | | |

| CONSENT SUMMARIES | July 2013 - June 2014 | Raglan WWTP |
|--------------------------|------------------------------|--------------------|
|--------------------------|------------------------------|--------------------|

The Raglan Wastewater Treatment Plant has generally operated in compliance with the conditions of Resource Consent 971390. 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 | |
|----------------------------|--|
| 2 | <p><i>Suitable fencing shall be installed and maintained to ensure that livestock are at all times unable to access the wastewater treatment site.</i></p> <ul style="list-style-type: none"> • The site is suitably fenced to exclude livestock from accessing the wastewater treatment site. |
| 4 & 6 | <p><i>The consent holder shall prepare an Operations and Management Plan. This Plan shall be prepared by a suitably qualified and experienced person and shall detail how the treatment system is to be operated and maintained to ensure compliance with the conditions of consents 971390 and 971392.</i></p> <p><i>The management plan shall be reviewed and updated by the consent holder as a minimum at 1-year intervals. The consent holder shall provide opportunities to the Tainui Hapu to comment on any proposed changes to the plan. Any proposed changes to the plan shall be submitted in writing for approval by the Waikato Regional Council.</i></p> <p><i>The consent holder shall undertake the treatment and disposal of wastewater in accordance with the approved management plan.</i></p> <p><i>The consent holder shall provide the Waikato Regional Council with a contingency plan that assesses the environmental hazards associated with potential discharge of wastewater from the wastewater treatment site and marine outfall.</i></p> <ul style="list-style-type: none"> • A Management and Contingency plan was submitted in June 2010 and accepted by Environment Waikato on 23 July 2010. |

| Conditions Comments | |
|----------------------------|---|
| | <ul style="list-style-type: none"> • An updated version was accepted by Waikato Regional Council in December 2013 with the requirement to update contact details. • These details have been confirmed by Tainui hapu representatives and submitted to Waikato Regional Council in September 2014. • Treatment & disposal is generally in accordance with the approved management plan. |
| 5 | <p><i>The Waikato Regional Council may in September 2006, September 2008, September 2010, September 2012 and September 2014, after consultation with the consent holder, serve notice on the consent holder of its intention to review the conditions of this resource consent:</i></p> <ul style="list-style-type: none"> • No notice to review has been received. |
| 7 | <p><i>The consent holder shall keep a complaints register for all complaints regarding all aspects of operations at the wastewater treatment facility received by the consent holder.</i></p> <ul style="list-style-type: none"> • Council's CRM database records all complaints from the public. There was one concern from the public during the consent year regarding the Raglan WWTP. |
| 8 | <p><i>The maximum volume of treated wastewater discharged shall not exceed 2,600 cubic metres in any 24 hour period.</i></p> <ul style="list-style-type: none"> • There were six occasions where the maximum discharge allowance was exceeded. These occasions aligned with rainfall events, were minor and within the tolerances of the meter (see below). • Waikato Regional Council has not advised any intention to review this consent/condition. |
| 9 | <p><i>A water flow meter shall be installed to record the quantity of treated wastewater discharged on a cumulative basis per tidal period. The meter shall be calibrated to ensure measurement of treated wastewater flow is maintained to an accuracy of +/- 2%. Access to the meter shall be provided to Waikato Regional Council staff at all reasonable times. The flow meter display panel shall be visible to the public.</i></p> <ul style="list-style-type: none"> • A meter is installed to record quantities of effluent discharged. The meter was calibrated May 2014. • A flow display panel visible to the public is installed on the roadside wall of the UV building. |
| 10 | <p><i>The consent holder shall maintain a record of the daily volume of treated wastewater discharged from the treatment system which shall be made available to the Waikato Regional Council at all reasonable times and these records shall be forwarded to the Waikato Regional Council on a three monthly basis. Records have been provided.</i></p> <ul style="list-style-type: none"> • This information has been provided monthly, with exception during a period of high staff turnover (Nov 13 – Feb 14). |
| 11 | <p><i>The discharge of treated wastewater shall occur for a maximum of 5.5 hours per outgoing tide. The discharge may commence no earlier than 0.5 hours before high tide and shall cease no later than 1 hour before low tide. Provided that for not more than 20 days per year immediately after extreme weather, pumping hours may exceed that maximum discharge duration of 5.5 hours per tide.</i></p> |

| Conditions Comments | |
|---------------------|---|
| | <ul style="list-style-type: none"> • The treatment team have automated the system so that the pumps logic is set using an algorithm dictated by the NIWA tide charts. • The treatment team check the accuracy of these settings periodically. |
| 12 | <p><i>The consent holder shall maintain a record of the date and time each discharge cycle commences and finishes which shall be made available to the Waikato Regional Council upon request and these records shall be forwarded to the Waikato Regional Council on a three monthly basis.</i></p> <ul style="list-style-type: none"> • Actual start and stop times are currently retrieved manually from the SCADA system. • Post upgrade, SCADA will record and store start and stop times for reporting. |
| 13 | <p><i>There shall be no discharge of oil or grease or persistent surface foam as a result of the exercise of this consent.</i></p> <ul style="list-style-type: none"> • No oils, greases or foams have been observed during the reporting period. |
| 14 | <p><i>The consent holder shall ensure that, no later than 2 years after the date of commencement of this consent, the suspended solids level does not exceed a median level of 20 grams per cubic metres for 12 consecutive monthly samples (one sample per month) and a maximum of 30 grams per cubic metre for 9 of 10 consecutive monthly samples (one sample per month).</i></p> <ul style="list-style-type: none"> • Please see attached spreadsheet. • Refer to the introduction section of this report with regard to TSS improvement initiatives. |
| 15 | <p><i>The consent holder shall ensure that, no later than 2 years after the date of commencement of this consent, the 5-day biochemical oxygen demand (BOD₅) concentration of the discharge does not exceed a median level of 10 grams per cubic metre of 12 consecutive monthly samples (one sample per month) and a maximum of 20 grams per cubic metre for 9 of 10 consecutive monthly samples (one sample per months).</i></p> <ul style="list-style-type: none"> • Please see attached spreadsheet. • Please refer to the comments made in the Introduction section of this report. |
| 16 | <p><i>The consent holder shall ensure that, no later than 2 years after the date of commencement of this consent, the concentration of faecal coliforms in the discharge does not exceed a median level of 14 (number per 100 millilitres) for 12 consecutive monthly samples (one sample per month) and a maximum of 43 (number per 100 millilitres) for 9 of 10 consecutive samples (one sample per month).</i></p> <ul style="list-style-type: none"> • Please see attached spreadsheet. • Full compliance with limits achieved. |
| 17 | <p><i>The consent holder shall monitor the concentration of enterococci in the discharge at weekly intervals from 15 December to 30 January. The consent holder shall ensure that, no later than 2 years after the date of commencement of this consent, the concentration of enterococci in the discharge is less than 35 enterococci per 100 millilitres of 5 of 6 consecutive weekly samples (one sample per week).</i></p> <ul style="list-style-type: none"> • Please see attached spreadsheet. |

| Conditions Comments | |
|---------------------|---|
| | <ul style="list-style-type: none"> • Full compliance with limits achieved. |
| 18 | <p><i>The consent holder shall provide to the Waikato Regional Council a written monitoring report by 30 September each year for the previous year ending 30 June of each year that this consent is current.</i></p> <ul style="list-style-type: none"> • This report is submitted in compliance with this condition. |
| 19 - 20 | <p><i>The consent holder shall notify the Waikato Regional Council as soon as practicable and as a minimum requirement within 24 hours, of the consent holder becoming aware of the limits specified in conditions 8, 11, 14, 15, 16, and 17 of this resource consent being exceeded and/or of any accidental discharge, plant breakdown, or other circumstances which are likely to result in the limits of this resource consent being exceeded. The consent holder shall, within 7 days of the incident occurring, provide a written report to the Waikato Regional Council, identifying the exceedance, probable causes, steps undertaken to remedy the effects of the incident and measures that will undertaken to ensure future compliance.</i></p> <p><i>The consent holder shall maintain a register of all incidents that result in an exceedance of the limits specified in conditions 9, 12, 15, 16, 17 and 18 of this resource consent.</i></p> <ul style="list-style-type: none"> • Suspended solids and flow were outside consent limits on numerous occasions and these issues have been communicated with WRC. • A register of incidents is included in the data summary of this report. |
| 21 | <p><i>The consent holder shall provide to the Waikato Regional Council, by the 5th anniversary of the granting of this consent, an Effects Assessment Report, that provides as a minimum:</i></p> <ol style="list-style-type: none"> (i) <i>A review of all monitoring results collected since this consent was granted;</i> (ii) <i>A discussion of the acceptability of the discharge to local Tainui Hapu;</i> (iii) <i>An assessment of the need to improve wastewater discharge quality and/or provide alternative disposal methods, based on the information provided in (i) and (ii) of this condition;</i> (iv) <i>A review of current developments in wastewater treatment and disposal technology that could be appropriate for Raglan wastewater treatment and disposal;</i> (v) <i>Recommendations for future action in the light of (i) to (iv) above.</i> <ul style="list-style-type: none"> • The fifth anniversary was February 2010 and the report by AWT consultants was provided to Waikato Regional Council and other interested parties at this time. |

| RC 971391 – Outfall Pipeline Structure – Condition Comments | |
|---|--|
| 2 | <p><i>The consent holder shall maintain the pipeline and outfall in a structurally safe condition at all times.</i></p> <ul style="list-style-type: none"> • This structure is a relatively new piece of infrastructure and as expected there have been nil reports of any issues which would compromise the structural integrity of this pipeline. |

RC 971392 – Discharge to Air – Condition Comments

All *The consent holder shall maintain the pipeline and outfall in a structurally safe condition at all times.*

- This structure is a relatively new piece of infrastructure and as expected there have been nil reports of any issues which would compromise the structural integrity of this pipeline.