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Report to Rural Services and Wairarapa Committee
from Graham Sevicke-Jones, Section Leader, Resource Investigations

Wairarapa Municipal Oxidation Ponds – Water Quality Monitoring - July 1999 – June 2001

1. Purpose

To inform the Committee of the annual Wairarapa municipal oxidation pond water quality report and to summarise its key findings.

2. Background

This report presents the results of the Wairarapa municipal oxidation pond water quality monitoring programme for July 1999 – June 2001. The report provides information on the water quality of effluent discharges from the Wairarapa municipal oxidation ponds, and assesses the effect of effluent discharges on receiving water quality. This report follows on from previous monitoring reports, of which the last was presented following the 1998-1999 monitoring period.

3. Significant Findings

3.1 Masterton

Effluent from Masterton oxidation ponds is discharged to the Makoura Stream near its confluence with the Ruamahanga River. Effluent analysis found that nitrite-nitrogen and BOD₅ concentrations in the effluent increased significantly over the reporting period. Receiving water quality analysis of the Makoura Stream found there was a significant change downstream of the discharge, in particular:

Increased nutrient levels (principally ammonia-nitrogen)

- Increased BOD₅
- A conspicuous change in water clarity

- Macroinvertebrate community structure decline

Water quality analysis of the Ruamahanga River found there was a significant change downstream of the Makoura Stream confluence. Of the parameters measured, ammonia-nitrogen and soluble reactive phosphorus concentrations showed the greatest increase; a conspicuous change in water clarity was also observed. The increase in *E.coli* downstream of the effluent discharge has not affected the compliance of the Ruamahanga River with contact recreation guidelines.

3.2 Carterton

Since the discharge to water consent was issued for the Carterton oxidation pond discharge to the Mangatarere Stream in June 1999, compliance with most of the effluent water quality conditions has been observed. The installation of mechanical aerators in July 1999 has resulted in significant improvements in effluent water quality, with lower BOD₅ and suspended solids concentrations. Results indicate:

- A significant decrease in suspended solids in the Mangatarere Stream downstream of the discharge since June 1999.
- The effluent discharge is contributing to a decline in water quality of the Mangatarere Stream, particularly;
- an increase in phosphorus
- conspicuous change in water clarity
- decline in the macroinvertebrate community structure.

3.3 Greytown

Effluent from Greytown oxidation ponds is discharged to Papawai Stream. Since 1994 (when records begin) a degradation in water quality, specifically increased nutrient levels, has occurred. Receiving water quality analysis found:

The increase in nutrient concentrations in the effluent has caused a corresponding increase in nutrient levels in Papawai Stream downstream of the outfall.

Significant differences in water quality were observed downstream of the effluent discharge, with:

- increased nutrient levels
- a conspicuous change in water clarity
- decline in the macroinvertebrate community structure.

3.4 Martinborough

Effluent from Martinborough oxidation pond is discharged to the Ruamahanga River. Effluent water quality was found to have degraded significantly over time in terms of nutrient concentrations, although a corresponding degradation was not observed in water quality of the

Ruamahanga River. The Ruamahanga River is however affected by the discharge with significant increases in:

- Faecal coliform and *E.coli* counts.
- Ammonia-nitrogen, nitrite-nitrogen and phosphorus concentrations.

The increase in *E.coli* counts caused by the effluent discharge has not affected the compliance of the Ruamahanga River recreational water quality guidelines.

3.5 Featherston

Effluent discharge from Featherston oxidation ponds occurs via a surface flow wetland to Donald's Creek. Several temporal trends in effluent water quality were observed, with the quality degrading since mid-1999. A corresponding degradation of Donald's Creek water quality was also observed, which may in part be a factor of the low flows over summer 2000-2001.

Receiving water analysis found the effluent discharge is causing significant changes in water quality of Donald's Creek with:

- Increased nutrient levels (in particular phosphorus and ammonia-nitrogen).
- A conspicuous change in water clarity.
- Decrease in pH.
- Decline in macroinvertebrate community structure.

The increase in *E.coli* counts caused by the effluent discharge has not affected the compliance of the Ruamahanga River recreational water quality guidelines.

4. Communication

Copies of the report are available to councillors on request.

The report will be sent to the District Councils, Public Health, Iwi and interested community groups.

5. Recommendation

That the report be received.

Report prepared by:

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