

Balancing Receipt of Trade Wastes against Tightening Regulatory Controls

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solutions for your environment



Overview

- Trade waste issues
- Trade Wastes in provincial towns?
- How is it different in NZ provincial towns?
- What pressures do the trade wastes impose?
- Regulatory Pressures on discharges
- Case Studies
- Partnership arrangements



Trade Waste Issues

Digging deep into ponds smell crisis

le 23 Feb 2013



STINKY SITE: The smell from the Wanganui wastewater ponds has reached a critical level for the local population.

The odour from the city's troubled wastewater treatment plant continues to hang around like the bad

regional Council, the discussions across all forms of media are a clear indication that the people have had

fight, infrastructure manager Ma Hughes (pictured). What cause of the problem at

Concern after council discharges algal bloom into Mataura River

The Southland Times 19 Jan 2019 Rachael Kelly

Southland Fish and Game have called for the Gore District Council to be held to account after it pumped an algal bloom into the Mataura River in December.

Fish and Game manager Zane Moss said Southland hadn't experienced a hot dry summer like last year, which accelerates algal growth, so to see a bloom like this was extremely concerning.

"My concern is that this bloom may be the result of increased nutrient loading caused by accepting the waste from the Mataura Valley Milk factory, and that rather than this being a one-off anomaly it could be an ongoing issue."

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NEW ZEALAND / REGIONAL

Stench from treatment plant plagues Whanganui

8:40 am on 30 December 2012

Share this

Whanganui mayor Annette Main warns there is no quick fix to the "appalling" stench from the city's overloaded wastewater treatment system.

Foul smells from the sewerage system have plagued parts of the city for weeks and driven some residents out of their homes.

Whanganui District Council says the problem stems from large-scale industrial dumping by unnamed companies.

NEW ZEALAND / REGIONAL

Council fined \$115k over Eltham stink

8:52 pm on 24 November 2016

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The South Taranaki District Council has been fined \$115,000 for its part in the rotting buttermilk odour that has plagued the township of Eltham.



Eltham residents had complained of poor health caused by chemicals in the rotting milk byproduct released. Photo: PHOTOS NZ

The council was sentenced on one representative charge of discharging contaminants brought under the Resource Management Act when it appeared in the New Plymouth District Court today.

Problems Continue At Te Kuiti Wastewater Plant

Te Kuiti's wastewater treatment plant is still causing major problems, according to regular monitoring by Environment Waikato and an independent review.

Last week's Regulatory Committee heard an independent review by Opus International Consultants described the ponds as "currently grossly overloaded". Last month weekly monitoring of the plant, following Environment Waikato staff concerns about the plant's operation earlier this year, had revealed that all areas tested were still well above allowable limits of the plant's resource consent.

Suspended solids were almost double the limit and sometimes almost 10 times the maximum allowable. Phosphorus, nitrogen and ammoniacal nitrogen were also well over the maximums, and average readings of faecal coliforms almost three times the maximum. Some samples were seven times the maximum.

Trade Waste Issues

- Commonly food processing industry wastes
- Generally large volumes
- High instantaneous flows
- Large contributory solids, organic and nutrient loads
- Unbalanced industry specific pollutants (brine, leachate, tannery, whey, buttermilk, CIP washes, stickwater)
- High pH swings
- Product dumps (milk, tallow, chemicals)

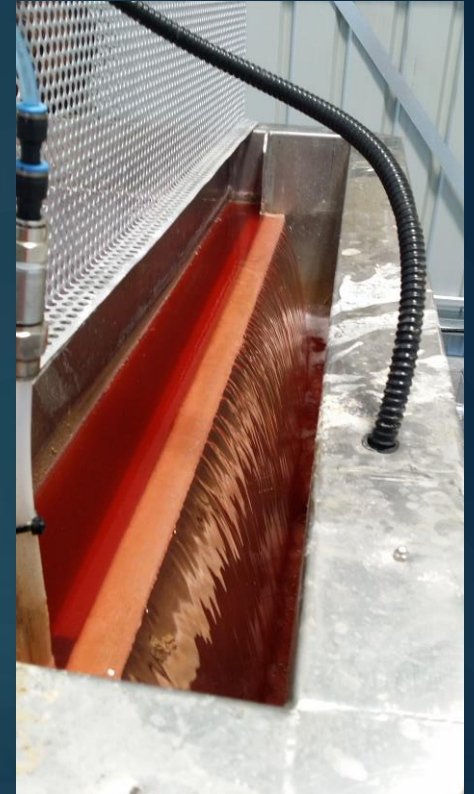


How is it Different in Provincial Towns?

- Economic driver for establishment of industries that support local employment
- A meat processing plant could directly employ 300-400 people
- Generally located near small surface water receiving environment
- Territorial authorities have competing drivers
- Costs for tightening environmental controls now have to be passed to the industry that was promoted previously by the same Council to be established

Food Industry Trade Wastes

- Continuous/Shift operations with large washdown footprint
- Typically contains large amounts of:
 - total suspended solids
 - oil & grease
 - biochemical oxygen demand
 - Total nitrogen
 - Total phosphorus
- Can have off-spec product dumps



Wastewater Treatment in Provincial Towns

- Treatment plants traditionally based on oxidation ponds
- Treatment capacity sized on removal of biochemical oxygen demand on generally accepted 70-80 kg BOD/ha/d loading
- Reliance on long term maturation for treatment
- No provision for nutrient removal



Receiving Environment Constraints

- Surface water receiving environment comprises of smaller rivers/streams – NPSFM implications + NES
- Considerable pressure on maintaining low levels of in-stream concentrations to manage near-field toxicity effects and far-field nutrient effects
- Policy based encouragement of land based treatment/disposal
- Substantial pressure for comprehensive upgrade to meet new expectations



New trade waste bylaw will help prevent smelly episodes at sewage settling ponds

Catherine Groenestein · 12:21, Aug 02 2016



Case Study 1 – Beef Plant



Case Study 1 – Beef Plant

- Processes 600 animals per day
- Discharges 900 m³/d of trade wastes of total of 5,700 m³/d ADWF (15%)
- Council faced potential upgrade costs of \$23M to meet new tighter consent limits [NH₄-N < 5 mg/L]
- Revised alternate treatment costs was trimmed down to \$18M
- Trade Discharger faced \$6M contributory costs and \$0.6M annual trade waste charges

Due to continually improving standards set by Environment Waikato, the Morrinsville wastewater treatment plant is in need of new technology and infrastructure. Council and local industry are investing an estimated \$18 million in to the upgrade, making it the largest single infrastructure investment Council has ever made.

Morrinsville Wastewater Plant upgrade

Council's wastewater service ensures that adequate wastewater collection, treatment and disposal facilities are provided and maintained for the health and wellbeing of our communities and to help protect the environment.

At the end of 2009, Council was granted new resource consents, allowing the operation of an upgraded wastewater treatment plant at Morrinsville. The plant deals with both domestic waste and also industrial waste, which makes it relatively complex and unusual for a small Council system.

Due to continually improving standards set by Environment Waikato, the Morrinsville wastewater treatment plant is in need of new technology and infrastructure. Council and local industry are investing an estimated \$18 million in to the upgrade, making it the largest single infrastructure investment Council has ever made.

"We have done extensive studies on upgrade options for the plant with prices reaching as high as \$30 million. Instead of doing a complete rebuild, we are upgrading and adding on to the plant to ensure that it will comply with standards for the next 15 years," says Council CEO, Don McLeod.

Fonterra's Morrinsville Dairy Processing Facility and Greenlea Premier Meats are major users of the system and will be meeting their full share of both capital and operating costs over the life of the plant. "Council has been working with these two local companies to secure their presence in the community for the future. Discussions have been very positive and constructive and both companies have been committed to not only the community, but to accepting the need to meet the costs of new environmental standards and to be part of this upgrade," concluded Don McLeod.

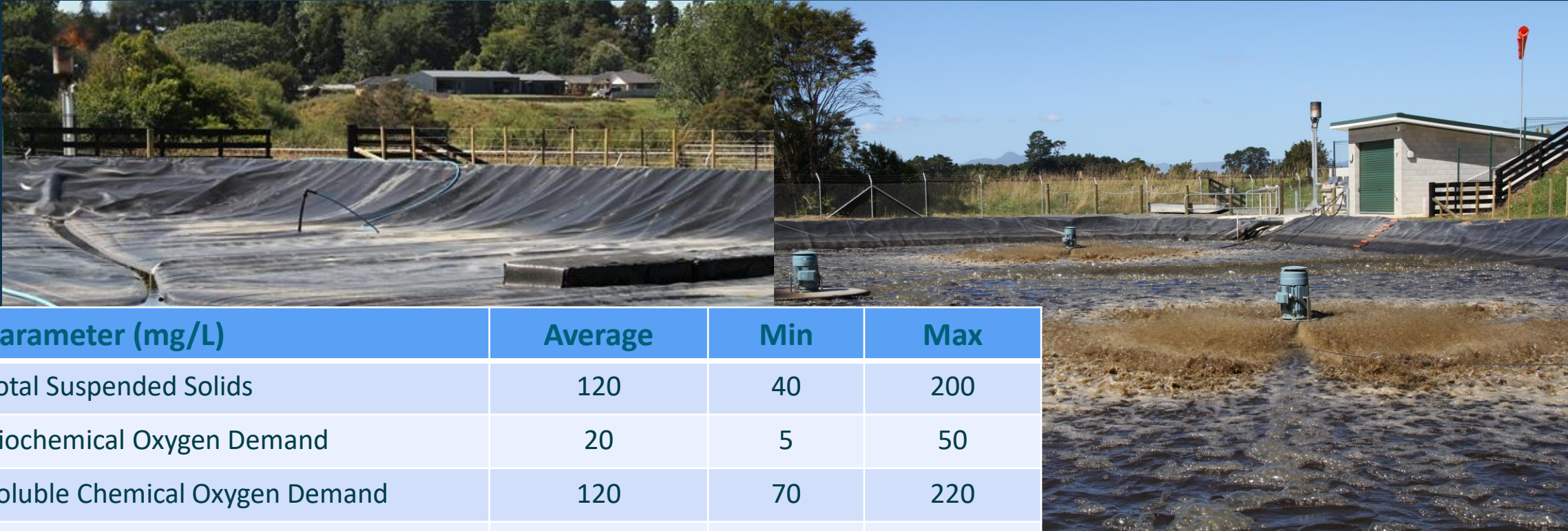
The upgrade is currently underway and is scheduled to be fully operational by December 2011.

Case Study 1 – Beef Plant

- One of 2 major trade waste contributors
- Increase in trade waste charges
- Substantial capital cost and operating costs implications
- Cost-sharing without any on-site treatment to be unsustainable
- Contribution calculated on marginal additional cost of treatment

Parameter	Value
Flow	900 m ³ /d
Total Suspended Solids	2,500 mg/L
Biochemical Oxygen Demand	3,000 mg/L
Chemical Oxygen Demand	6,500 mg/L
Total Kjeldahl Nitrogen	350 mg/L
Total Phosphorus	35 mg/L
pH [pH units]	6.5 – 7.5

Case Study 1 – Beef Plant



Parameter (mg/L)	Average	Min	Max
Total Suspended Solids	120	40	200
Biochemical Oxygen Demand	20	5	50
Soluble Chemical Oxygen Demand	120	70	220
Total Kjeldahl Nitrogen	40	30	60
Ammoniacal Nitrogen	30	15	60
Total Phosphorus	30	20	35
Total Oxidised Nitrogen	50	30	130
pH [pH units]	6.7	5.7	7.7

Capex - \$2M
Opex + Trade Wastes – \$200K/yr

Case Study 2 – Multiple Plants

- 2 food processing industrial sites located at the uppermost catchment of the council owned sewerage network
- Collectively contributes to around 35% of the total wastewater flows and > 80% cBOD₅ loads
- Council promoted establishment of the industrial sites as part of economic and social good for the small community
- Had heavily subsidised the trade waste discharges over the years
- New trade waste agreements developed on 80% recovery of actual costs
- Notice provided to dischargers that trade waste charges are rising by 10% each year and the 20% subsidy is taken away

Case Study 2 – Multiple Plants

- Aging network infrastructure is an issue
- Trade waste charges around \$700K per year and rising
- Council has upgraded wastewater treatment plant at a cost of \$8M
- Very tight discharge limits especially for total nitrogen (TN < 15 mg/L), given that both industrial sites collectively contributed in excess of 350 mg/L
- Proposed upgrade costs for managing wastewater at one of the sites is in excess \$3M to allow considerable reduction in trade waste charges



Case Study 3 – Food Processing Site

- Started as a gentleman's agreement
- Pre-treatment undertaken by food processing plant
- Discharges 500 m³/d of partially treated wastewater
- Trade waste charges are minimal (nearly zero rated) as costs are recovered indirectly through water supply charges (domestic rates)
- Council is under pressure to manage historical sludge accumulation in the oxidation ponds and may seek redress through a comprehensive trade waste agreement
- Re-examination of current arrangements to move to an agreed trade wastes agreement



Case Study 4 – Food Processing Site

- Council introduced conditional agreement partly based on trade wastes standards and tightening consent limits
- Small goods with high loads associated with phosphorus and nitrogen
- Wastewater also has high amount of brine
- Land discharge by council is putting land treatment under pressure
- Stage 1 onsite treatment system to remove solids, organic loads, proteins and phosphorus
- Land management for sodium through gypsum addition



Environmental Controls – Signals on the Horizon

- 3 Waters Reform and what this could mean for smaller councils
- NPS-FM and the attribute limits set for catchments and surface waters
- Land treatment systems under tightening nutrient leaching limits
- Replacement of aging infrastructure

South to get \$200m dairy plant

The Southland Times 29 Jul 2016 +2 more
GERARD HUTCHING AND BRITTANY PICKETT

A state-owned Chinese company is investing in a Southland company to build a \$200 million dairy processing plant with the promise of creating 100 new jobs.

Mataura Valley Milk has announced China Animal Husbandry Group (CAHB) will have a 71.8 per cent



The Realities

\$6.5 million invested into wastewater treatment plant near Gore

14:18, Sep 12 2017



SUPPLIED

Signal Management Group site manager Tom Nailard, Gore District Council 3 Waters asset manager Matt Bayliss and Mataura Valley Milk engineering manager Brent Robinson look at plans for the new wastewater treatment hub.

Mataura Valley Milk is investing \$6.5 million to build a wastewater treatment plant near Gore.

It is a joint initiative involving the Gore District Council, which will oversee construction and operate the plant once it is finished.

It has been specifically designed to treat wastewater from Mataura Valley Milk's purpose-built nutrition plant at McNab, about 5km north of Gore.

The plant is one of several facets to the \$240 million nutrition plant development where the company and the council are working collaboratively.

\$6.5M into wastewater plant upgrade works

Concern after council discharges algal bloom into Mataura River

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Southland Fish and Game have called for the Gore District Council to be held to account after it pumped an algal bloom into the Mataura River in December.

Environment Southland has confirmed it is investigating and is

A member of the public provided The Southland Times with photos and a video of the algal bloom, which were taken on the afternoon of December 26. "What concerns me is that if it was a farmer doing that, they'd be prosecuted, but if it's a council it's okay," they said.



said Southland hadn't experienced a hot dry summer like last year, which accelerates algal growth, so to see a bloom like this was extremely concerning.

"My concern is that this bloom may be the result of increased nutrient loading caused by accepting the waste from the Mataura Valley Milk factory, and that rather than this being a one-off anomaly it could be an ongoing issue."

Moss said the community had high expectations that everyone protects the environment, including local

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Duty of Managing the Environment



Questions

Wastewater Engineering

Water Quality Management

Solid Waste Management

Water Supply and Treatment

Reuse, Recycling and Resource Recovery

Hazardous Waste Management

Irrigation and Sustainable Production

Dust and Noise Pollution

Contaminated Land Management

Erosion/Sediment Control

Flood Management

Biosolids Management

Assessment of Environmental Effects

Sustainability, Carbon/Water Footprint

Groundwater Management

Air Quality Management

Land Treatment of Wastes

Landfills and Leachate Management

Biogas and Energy Recovery

Stormwater Management

River and Coastal Engineering

Natural Systems Modelling



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