

Significant Adverse Effects What Does It All Mean ?

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Agenda

- Wastewater treatment plant
- Discharge consent
- Abatement Notice
- In River Studies
- Compliance Assessments
- Consent Review

Wastewater Treatment Plant

- Population served by WWTP – approx. 75,000 people
- Typical secondary process – sedimentation, aerated lagoons, P removal, uv disinfection and discharge to river via wetland pond
- DWF approx. 25,000 m³/day, PWWF approx. 100,000 m³/day
- Discharge is approx. 3 % of river flow in extreme low flow conditions



Wastewater Treatment Plant



Primary Treatment Plant

Sludge Digesters

Sedimentation
Tanks

Clarifier –
phosphorus dosing

UV Treatment

Wetland pond

“Land Passage”
discharge to River

Aerated Lagoons

Discharge Consent to Manawatu River

- 25yr consent granted in 2003 under the MRWQRP with a focus on contact recreation standards – bacterial and DRP limits
- 5 Permits relating to the discharge
- Main discharge consent – 26 conditions
- Improvements undertaken to meet discharge standards
 - 2004 - UV plant
 - 2005/6 - Capacity improvements
 - 2008 – dissolved reactive phosphorus removal facility
- Cost approximately \$16m

Consent conditions

- Generally end of pipe standards apply –very good compliance record
- Allows for annual review of conditions if required
- Quarterly compliance reports required
- Macro-invertebrate surveys required before and after phosphorus treatment upgrades
- Two catch all conditions regarding significant adverse effects and stock watering – but no defined way of measuring these
- Condition 3(f):

“The discharge shall not cause significant adverse effects on aquatic life after reasonable mixing (400 m downstream)”

Basis of consent

- Issued under the still operative Water Quality Plan
- The WQP required that significant adverse effects are to be assessed under Rule 1 which talks about ammonia, BOD and water clarity –but this was not included in the consent
- Consent could not be issued unless Commissioners were satisfied Section 107 is met (i.e. no significant adverse effects on aquatic life after reasonable mixing)
- Commissioners accepted that there would be a certain point at which periphyton guidelines would be exceeded (approx. 18 days of low flow in the river)
- Highest level of effects occurred and most stringent consent conditions apply when flow < 37 cumecs in river
- Consent requires quarterly reporting and compliance assessment

Benthic survey

- Condition 19 of the consent also required:
 - Surveys of macro invertebrates and periphyton growth 200 m upstream and 2800 m downstream of the discharge :
 - in each of two years before the phosphorus treatment upgrade and
 - in the two consecutive years after the phosphorus treatment upgrade



Basis of consent

- Condition 19 report submitted to Horizons Regional Council – March 2011 concluded:



“Although some downstream impacts on benthic ecology continue to be evident, the WWTP upgrade has delivered significant benefits in terms of both macro-invertebrate community health and periphyton biomass.

Despite this improvement periphyton cover and biomass can still reach very high levels, well above guideline values, both upstream and downstream of the WWTP discharge”

Compliance Assessment

- Horizons Regional Council assessment report (June 2011) indicated non-compliance for condition 3f on the basis that:

The survey indicates the discharge could be having a significant adverse effect on the aquatic ecosystem downstream of the ... discharge, and

The increases measured (of periphyton cover) can have significant effects

- PNCC responded by saying that the assessment should trigger further investigations if considered necessary

Lead up to Abatement Notice

- Report to Horizons Councillors in September 2011 alleging PNCC had a poor compliance record (based on % of assessments with non-compliances rather than % of conditions not complied with)
- Most non-compliances related to commissioning issues with the new plant rather than recent discharge quality
- Non-compliance appeared to be due to new interpretations of “significant adverse effects” rather than any change in discharge quality
- Benthic survey reports prior to the DRP upgrade had not led to non-compliant assessments
- PNCC proposed that assessment criteria be established and joint investigations be undertaken to understand the effects of the discharge

Abatement Notice

- Abatement notice received 7 October 2011 requiring that:

“PNCC cease the discharge of treated wastewater from its’ Palmerston North Sewage treatment plant into the Manawatu River that has a significant adverse effect on aquatic life by 5 November 2011”

This effectively required PNCC to stop its discharge completely within 4 weeks or else face prosecution !!!



Appeal to Environment Court

- The Horizons officer responsible for reporting to his Council resigned before the abatement notice was issued
- PNCC had no option other than to appeal to the Environment Court on the grounds that;
 - It was not clear what action would be necessary to comply with the notice as the particular component of the discharge that was causing the problem was not known
 - Stopping the discharge altogether would cause significant public health risks
 - Council was not in a position to know what to do by 5 November 2011
 - It provides for a stay of the notice until the matter is resolved

Cancellation of Abatement Notice

- Horizons cancelled the notice once PNCC agreed:
 - to a joint programme of work to investigate the causes of accelerated periphyton growth



In River Studies - 2011/12

- Joint programme of in river investigation completed summer 2011/12
- Results identified that periphyton growth was greater than could be explained by the discharge of DRP by the city.
- A further study (not joint) was recommended to identify the causes of the accelerated periphyton growth in the following summer
- PNCC adopted a Wastewater Action Plan of \$1.2 m unbudgetted expenditure in 2012/13 and \$600k in 2013/14

In River Studies – 2012/13

- Further investigations undertaken in 2012/13 summer (lowest river flows recorded in 75 years)
- Revealed that;
 - total phosphorus is converting to DRP in the river due to pH changes
 - nitrogen limits periphyton growth below river flows of approx. 20 m³/sec



Consent Review

- Consent provides for reviews to be undertaken annually on the anniversary of the consent
- 3 Notices of Review have been received to date
 - the first two were defective
 - a further valid notice was received in May 2013
- Horizons has issued draft proposed conditions featuring:
 - in river standards based on One Plan (not yet operative) targets

Consent Review

- Stated purpose of the review is to:

“Address periphyton growth downstream of the discharge and the impacts this is having on the life supporting capacity”

- Narrow scope – consent cannot be cancelled and term cannot be changed
- Horizons has invited PNCC to respond with conditions by 30 September 2013
- Public notification in October 2013
- Hearing likely early 2014

Other Compliance Matters

- Stock water condition allegedly breached due to E-coli
 - Assessment based on single grab samples in river
 - Interpreted incorrectly
 - ANZECC guidelines were used as an assessment tool rather than as a trigger for further investigation
 - Massey farms directly opposite on river bank, wetland pond downstream of E-coli end of pipe measuring point
 - Non-compliance reported to Horizons Regional Council meeting
 - Subsequently withdrawn based on letter from PNCC

Summary and Key Messages

- Issue has been allowed to developed a momentum of its own
- All stems back to a single officer's interpretation of a benthic report
- No previous non-compliances of condition 3(f)
- Seems that goal posts have shifted in terms of what was expected under the original consent
- Do reviews impinge on the property rights associated with consents ?
- Poor processes followed as consent reviews are not commonplace
- All costs passed on to PNCC from regulator

Summary and Key Messages

- Regulatory matters were initially played out in the media
- Implications of inconsistent approaches to compliance assessment are potentially very large (up to \$20m for PNCC)
- Political involvement in regulatory processes
- New Manager at Regulator is committed to building relationship with PNCC
- Dealing with these matters is resource intensive
- Commissioners will ultimately decide whether there are significant adverse effects under Section 107 of the RMA