BEFORE THE MANAWATU-WANGANUI REGIONAL COUNCIL

UNDER	Resource Management Act 1991
IN THE MATTER	of submissions on the Manawatu-Wanganui Consolidated Regional Policy Statement, Regional Plan, and Regional Coastal Plan for the Horowhenua, Manawatu, Rangitikei, Ruapehu, Tararua, and Wanganui District Councils
AND	
IN THE MATTER	of hearings by the Manawatu-Wanganui Regional Council regarding the Manawatu-Wanganui Consolidated Regional Policy Statement, Regional Plan, and Regional Coastal Plan – Water

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EVIDENCE OF PAUL KENNEDY

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INTRODUCTION

1. My name is Paul Cameron Kennedy. I hold the degrees of BSc and BSc. (Hons) in Botany and Zoology from Victoria University of Wellington and have been involved in environmental research and assessment since 1975. I am a Principal Environmental Consultant with Golder Associates (NZ) Limited, a part of the global engineering and environmental consulting company Golder Associates. Prior to December 2006 I had been employed by Kingett Mitchell Ltd since 1985 and was a Director of that Company.

2. I am a member of the New Zealand Water & Wastes Association (Stormwater SIG Chair) and the Society for Environmental Toxicology and Chemistry.

3. I have been involved in a wide range of projects and environmental assessments relevant to the evidence I will present before this hearing. I have undertaken a range of work relating to wastewater disposal including assessments of discharge impacts of contaminants and nutrients.

4. In the North Island I have undertaken assessments relating to the Huapai, Helensville, Drury, Mangere, Rosedale, Kingseat, Owhanake (Matiatia), Paeroa, Ngatea, Waihi Beach, Clive, Waikanae, Paraparaumu wastewater treatment plants. I have also been involved in resource consent processing and assessment for the Army Bay, Waiuku and Hamilton City treatment plants. I have also been involved in assessments and peer reviews for a range of treatment plants and outfalls elsewhere in New Zealand.

5. I have undertaken work for other natural resource industries including dairy factories, meat works, wool scours and forestry. The latter including studies for the Kinleith Pulp and Paper Mill and the Norske Skog/Tasman mill at Kawerau. In the Horizons Region I have, and am assisting clients in industries such as carpet manufacture (Feltex), Dairy (Fonterra Pahiatua) and brewing (DB Mangatainoka).

6. I have also had extensive involvement in issues associated with stormwater quality runoff from urban environments and have undertaken a range of environmental studies associated with stormwater quality and its effects. This has included five years of work on the effects of stormwater runoff from roads on freshwater and marine aquatic environments (on behalf of the Ministry of Transport). I have recently also completed studies for the Auckland Regional Council on the quality of runoff from house and

building roofs (published as ARC TP 123) and on contaminant loads from urban catchments.

7. I have published a number of scientific papers and publications (including Chapter 9 - Sewerage network and treatment plant monitoring and Chapter 10 - Discharge monitoring in the "New Zealand municipal and community wastewater monitoring guidelines") in the area of New Zealand ecology and environmental chemistry. I have also been involved in and prepared more than 400 reports on environmental assessments, impacts and resource investigations.

8. The evidence I am about to give is within my area of expertise and represents my best knowledge about these matters. To my knowledge, I have not omitted any material facts that might alter or detract from the opinion expressed here.

9. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note and that I agree to comply with it. I confirm that I have considered all of the material facts that I am aware of that might alter or detract from the opinions expressed here.

SCOPE AND SUMMARY OF EVIDENCE

10. This evidence has been prepared in respect of the Territorial Authorities' ("the TAs") submission on the following provisions of the Horizons Regional Council Proposed One Plan ("Proposed Plan"):

- Objective 6-1, Objective 6-2, Policy 6-1, Policy 6-2;
- Policy 6-4 Enhancement where water quality standards are not met;
- Policy 6-7, 6-8 Point source discharges to water; and
- Rule 13-15 - Discharge of stormwater to surface water and land

11. The principal purpose of this evidence is to discuss the purpose and effect of applying water quality standards (as set out in Schedule D pf the Proposed Plan) to water bodies within water quality management zones. I will also comment on the assignment of management values on an 'across the board' basis to all water bodies.

12. I have read through the extensive body of technical information that has been produced during the last few years supporting the water quality aspects of the Proposed Plan. This information is extremely valuable and has advanced Horizons knowledge of water quality and the State of the Environment in the region immensely. This is particularly the case in relation to nutrients which were identified as one of the regions key issues in the Proposed Plan.

13. In the following evidence I will discuss a number of matters in the Proposed Plan relating to surface water quality that have a direct bearing on the District and City Councils in the region. These include:

- Issues associated with the identification of values in water quality management zones;
- The inappropriate use of the ANZECC trigger values in Schedule ;
- The ability of the Proposed Plan to incorporate amendments and changes to the Schedule D water quality 'standards'; and
- The Proposed Plan not giving sufficient weight to the issues that are likely to arise for councils required to meeting the Schedule D standards in relation to areas of water quality management such as stormwater management.

BACKGROUND COMMENTS ON WATER QUALITY POLICY AND OBJECTIVES

14. In managing water quality within the Horizons Region, the Proposed Plan sets out Objectives, Policies and Rules for the management of surface water quality in the Region. Through the following parts of Objective 6-2:

> "(i) water quality is maintained in those rivers where the existing water quality is sufficient to support the values of the river
> (ii) water quality is enhanced in those rivers where the existing water quality is not sufficient to support the values of the river
> (iii) accelerated eutrophication or sedimentation of lakes in the Region is prevented or minimised."

15. This Objective recognises that the life sustaining capacity of surface water bodies depends to a large extent on the quality of those waters and that the maintenance or

enhancement of water quality may be required to support the values of the water body. Policy 6-2 states that the water quality standards in Schedule D are to be used for the management of surface water quality in the manner set out in Policies 6-3, 6-4 and 6-5. I will refer to Schedule D as such through my evidence noting that in the current track changes version the values for the water quality management zones are now presented in Schedule Ba.

16. The management framework provided by Objective 6-2, Policies 6-2 to 6-5, 6-8 and Schedule D is intended to provide for the values identified for each Water Quality Management Zone ("WQMZ"). The water quality standards in Schedule D are for the most part based on current understanding of the relationship between water quality and ecological function in New Zealand rivers and streams.

17. I have read the recommended amendments to the water quality Policies and Objectives 6-1 and 6-2. The most significant change made in the August 2009 staff report (Barton & James 2009) is the inclusion of a long term target in relation to Schedule D (with the values and standards being split into Schedules Ba and D respectively). That is:

> "Surface water bodies are managed in a manner which sustains their life-supporting capacity and recognises and provides for the values set out in Schedule Ba by 2030."

18. The inclusion of the long term target in Objective 6-1 reflects the comments made by a number of submitters and commentators that included the TAs. My interpretation of the revision is that the objective relates to the identified values for the WQMZs and not to the water quality standards that have been identified to meet those values. The disconnection of the WQMZ values that were in Schedule D with the water quality standards means however that the standards which are the benchmarks for the values apply today rather than in 2030.

19. Objective 6-2 now states (with recommended revision):

> "Surface water quality is managed to ensure that:
> (i) Water quality is maintained or enhanced in water bodies at a level which supports the values of the river water bodies..."

20. Objective 6-2 must be read in conjunction with Policy 6-1, which sets out the management framework. The Policy now reads:

"For the purpose of safeguarding the life-supporting capacity of water bodies and to avoid, remedy or mitigate adverse effects of activities on water quality, water quantity and the beds of rivers and lakes, water bodies in the Manawatu-Wanganui Region shall be managed in accordance with the following framework:

(i) The Water Management Zones and Water Management Sub-zones and Groundwater Management Zones defined in Schedule Ba, Part Ba1 shall be used as the units for integrated management of water bodies;

(ii) Water bodies shall be managed in a manner that recognises and provides for the surface water management values defined in Schedule Ba, Part Ba2;

(iii) Surface water quality shall be managed according to the standards set in Schedule D, which provide for the values defined for each Water Management Sub-zone..."

21. Policy 6-3 establishes the expectation that if all the water quality standards in Schedule D are met in a WQMZ then they will continue to be met through appropriate management.

22. Policy 6-4 then states:

"In each case where the existing water quality does not meet the relevant water quality standard within a Water Management Sub-zone, as shown in Schedule D, activities shall be managed in a manner which maintains or enhances existing water quality in order to meet the water quality standard for the Water Management Sub-zones shown in Schedule D".

23. Although this re-wording has been recommended, Barton & James (2009) have indicated in their Officers' Report that information about how this is implemented will be provided in a Supplementary Report. This supplementary information was not available at the time of preparing this evidence. In the absence of this additional interpretive information, my understanding of the Policy is that in circumstances where current, or to be consented discharges, do not meet Objective 2 then Policy 6-4 provides for a mechanism for a discharger to improve discharge quality/contaminant loads with the aim of meeting the WQMZ value standards as set out in Schedule D by 2030.

WATER QUALITY MANAGEMENT ZONE VALUES

24. Values are assigned to overall WQMZs and sub-zones. I recognise that these values are assigned generally to the zones and will not in all cases reflect actual or potential values/uses in the zones they have been assigned to.

25. The values identified for WQMZs are an important component of the framework developed for the allocation of water within the Horizons region and in particular the establishment of minimum flows through IFIM studies. I have read the officer's report of Ms Raelene Hurndell and recognise the complexity and competing interests of establishing water allocation.

26. Although the Proposed Plan allows, through Policy 6-19, allocation of water for domestic water supply below minimum flows, the territorial authorities operate a number of water takes which have been in place and established for in some cases nearly 100 years. Values assigned to catchments should not prejudice those takes where the take was present prior to the value being assigned in the Proposed Plan.

WATER QUALITY STANDARDS

27. Schedule D identifies the standards that apply to a wide range of key water quality indicators. It is relevant to explore the use of the reference to standards in the Proposed Plan.

28. In Section 1.3.1 of Aussiel & Clark (2007) (Recommended Water Quality Standards for the Manawatu-Wanganui Region: Technical Report to Support Policy) the authors note that sections 70(1) and 107(1) of the Resource Management Act 1991 ("RMA") set five narrative standards in relation to permitted and consented discharges. They noted that these standards relate to different potential impacts of a discharge, ranging from visual impact to adverse effects on aquatic life. There are numerous definitions of standards but the RMA section 70 'Rules' about discharge relate to non standard matters (e.g., conspicuous change, production of conspicuous etc) and the prevention of significant adverse effects on aquatic life.

29. In Section 1.4.2, the authors stated:

> "It is recommended the One Plan includes:
>
> Standards, that will define the environmental bottom line beyond which values will be lost or compromised. In other words, the standards will define the bounds within which an activity can occur without compromising the values. They will represent one aspect of the regulatory translation of the values into policies. The definition of water quality standards is the subject of this report".

30. Furthermore, In Section 3.2.3.9 they noted:

> "The 2000 ANZECC guidelines incorporated the best scientific information available at the time of development. To the best of our knowledge, there are no further comprehensive studies justifying a significant departure from the ANZECC recommendations on acceptable levels of waterborne toxicants.
>
> The ANZECC guidelines recommend several levels of protection, depending on the level of disturbance acceptable at the site. These levels of protection correspond to the percentage of species likely to be adequately protected by the corresponding guideline level: 99% is the recommended level for systems of high biodiversity value, 95% for slightly to moderately disturbed ecosystems, and 90% for highly disturbed ecosystems."

31. Having provided these quotations I would like to discuss the following matters that I consider are critical to the incorporation of numeric values into Schedule D of the Proposed Plan:

- The purpose of the ANZECC (2000) guidance;
- The status and correctness of the ANZECC (2000) guidance; and
- Section 70 of the RMA which identifies in its rules the prevention of "significant adverse effects'.

The ANZECC Framework

32. ANZECC (2000) outlines the management framework recommended for applying the recommended water quality guidelines to marine and fresh waters in Australia and New Zealand. On the very first page of ANZECC (2000) it is noted that:

> "<u>These Guidelines should not be used as mandatory standards</u> because there is significant uncertainty associated with the derivation and application of water quality guidelines. For example, data on biological effects are not available for all local species; there is uncertainty over the behaviour of contaminants in the field; there is uncertainty in water quality measurements. The user should be aware of this uncertainty when determining if an environmental value has been supported or not. However, the Guidelines should provide a framework for recognising and protecting water quality for the full range of existing environmental values. The Guidelines also provide risk-based decision frameworks wherever possible".

33. This is an important point, particularly in relation to toxicants that have not been followed to date in their use by Regional Councils in New Zealand.

34. Section 3.4.3.2 of ANZECC (2000) sets out a decision tree process for applying the guideline values (called trigger values) for toxicants. The trigger system commences at the top of the tree (Figure 3.4.2 in volume 1) by referring to the initial assessment of acid soluble metal concentrations. ANZECC (2000) also intended that using acid soluble measurements was only the first step in the assessment tree. Following that assessment and comparison with the trigger values, the data would be evaluated further. Following this first step in the hierarchical assessment process subsequent steps involve ecological assessment to refine actual impacts if and where they occur.

35. It is also worth noting that the Proposed Plan does not provide any information in relation to the methods it considers should be used for the determination of trace elements in using Schedule D. For toxicity, the dissolved fraction is more relevant and this is recognised by ANZECC.

The Numeric Values in ANZECC

36. It should be noted that over the last two years there has been discussion about revisions to the ANZECC. Following that discussion, a revision process was announced in May 2009.[1] This process is likely to occur through 2010 and into 2011. I would assume that when the revisions to ANZECC (2000) are published by ANZECC in about two years, any changes to numeric values would be adopted in the Horizons water management framework. I recognise that the RMA does not provide for revisions to Plans without going through a plan change process. As such I am unsure how the Proposed Plan proposes to accommodate changes to Schedule D as revisions to the ANZECC (2000) guidelines occur.

37. In the last two years, there has been technical discussion about the 'accuracy' or 'correctness' of some of the toxicant trigger values in ANZECC (2000) (refer Fitzpatrick 2008, Fitzpatrick & Kennedy 2008). Revisions have been undertaken for a range of toxicants. For example, MfE provide on their website a copy of the recalculation undertaken by Hickey (2002) for toxicity due to nitrate-nitrogen. Recently Hickey & Martin (2009) have prepared another revision dramatically lowering the trigger values for nitrate toxicity. The boron trigger values have also been recalculated (Golder Associates for Solid Energy, refer Fitzpatrick & Kennedy 2008) and these have been accepted by Environment Waikato and incorporated into consent conditions).

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[1] refer http://www.mfe.govt.nz/publications/water/anzecc-water-quality-guide-02/ for more information.

38. As a part of evidence presented to Environment Canterbury (for the Proposed Natural Regional Resources Plan - PNRRP), Christchurch City Council had a recalculation of the ANZECC (2000) zinc trigger values (95% trigger value of 8.0 mg/m^3) undertaken (Golder Associates in 2008 for the PNRRP Hearing). The recalculated 95% trigger value for zinc was identified as being of high reliability and the concentration was 23.0 mg/m^3. Similar re-calculation exercises have now been undertaken for elements such as aluminium, cadmium, lead and nickel and ammoniacal nitrogen. It is important to note that the overall ANZECC approach is not in question only the technical robustness of the data used in the calculation of the trigger values.

The RMA and Effects

39. The RMA aims to prevent any significant adverse effects on aquatic life. In selecting the ANZECC trigger values as benchmarks for maintaining water quality and ecosystem well-being in the Proposed Plan, it needs to be recognised that the ANZECC trigger values for toxicants are based on NOEC data (No Observable Effects Data). This level of protection is more conservative that the well known USEPA chronic criteria which provide protection for most aquatic organisms. It was the basis of this approach that ANZECC clearly identified that the numeric trigger values were not standards but were the start of an assessment process (as noted earlier).

40. I have read the reports prepared for the Proposed Plan hearing by Kathryn McArthur, Dr Gibbs, and Dr Quinn, who all comment on the use of standards in the Proposed Plan. My comments relate principally to toxicants in Schedule D.

41. At paragraph 219 of her report, Kathryn McArthur discusses the methods that were used to identify water quality standards. The approach identified that, in the absence of local standards, the application of national or international guidelines or trigger values, that provide for a wide range of aquatic species, was appropriate. She notes that this was consistent with the recommendations contained within the ANZECC guidelines (ANZECC, 2000) for deriving localised trigger values. I agree that was generally the approach, but I do not consider that the direct use of the trigger values in ANZECC (2000) represents the development of local trigger values. In addition, the ANZECC (2000) process was for the development of trigger values not standards. That point appears to have been missed.

42. In his report, Dr Quinn makes supportive comments about the approach the Proposed Plan has taken and the work undertaken. I would generally support those. Dr Quinn makes particular reference to expressing standards as "shall not be exceeded limits". Dr Quinn identifies that he supported the Proposed Plan approach of using maximum values (without percentiles specified) for attributes that have potential lethal effects on biota, such as maximum temperature, minimum dissolved oxygen and ammonia. However, I would note that the numeric values identified in Schedule D for ammonia-nitrogen are no effects values and values at that concentration do not have potential to cause lethal effects on aquatic biota.

43. Dr Quinn discusses the allowance of breaches (refer Ausseil & Clark 2007) of the maximum numeric values in Schedule D and indicates that he would seek advice on interpretation in "the supporting document". I have not to date seen any further information supporting this approach. The current tracked change version of Schedule D still notes for toxicants that "the concentration of toxicants in the water shall not exceed the trigger values defined in the ANZECC guidelines Table etc.".

44. Dr Biggs (Biggs 2009) provides useful discussion on standards in his report at paragraph 38. He identifies (in relation to nutrients) the difference between effects based guidelines (such as the New Zealand periphyton guidelines) and reference based guidelines (the ANZECC guidelines). However this just confirms that the Proposed Plan Schedule D standards are a mixture of the different types. Generally, the effects based guidelines proposed in the Plan (e.g., oxygen demand, temperature, periphyton) are more robust that the guidance values taken directly from ANZECC (2000).

45. In summary, I have significant issues with the adoption of ANZECC (2000) water quality trigger values for toxicants in Schedule D of the Proposed Plan as standards. These concerns are:

- The ANZECC trigger values are not standards and were not intended for that use;
- The ANZECC trigger values are the start of an assessment process that is not embodied in the Proposed Plan;
- The ANZECC trigger values for toxicants are no-effects based water quality trigger values and as such there is conservatism built into their use; and

- The Plan does not include any mechanism to incorporate amendments and changes to the Schedule D water quality 'standards'. This is important as changes are expected within 24 months.

STORMWATER QUALITY MANAGEMENT

46. Stormwater quality management is important in many urban environments but probably less so in the Horizons region than in other regions. However, stormwater quality has the potential to impact upon the values of receiving environments through degradation of water quality, the key focus in relation to water quality being sediment, microbiological and toxicants. In his statement of evidence Mr Braden Austin notes that Schedule D applies to the receiving water of stormwater discharges. There are issues such as those described by Mr Austin related to sources completely outside the control of councils affecting stormwater quality. There are however fundamental issues relating again to the use of standards included in the Proposed Plan directly from ANZECC. This was the subject of significant evidence presented to the Environment Canterbury PNRRP Hearings Panel as a part of the PNRRP hearings in 2008 and 2009.

47. The key toxicants that Councils have to deal with when managing urban stormwater are metals such as copper and zinc and organic compounds such as polyaromatic hydrocarbons. Of the metal contaminants present in urban stormwater, zinc is probably the most important as much of the zinc is in a dissolved form compared to other metals and zinc has been identified as one of the most likely causal agents in stormwater toxicity through the use of TIE (Toxicity identification evaluation) studies (Refer Kennedy 2003).

48. I mentioned that the ANZECC (2000) 95% trigger value for zinc was 8 mg/m^3 and that a re-calculation to produce a high reliability trigger value resulted in a value of 23 mg/m^3. Why this change is potentially very significant to Councils that are implementing catchment management and developing stormwater management and treatment strategies is that a significant economic penalty can arise in designing treatment facilities to meet environmental targets. This may relate to managing street cleaning, construction of wetlands and pond systems or the installation of higher tech treatment devices involving filtration and sorption media to remove dissolved contaminants.

49. Rule 13-5 sets out, in (h), conditions for the discharge of stormwater to water and identifies that they "shall not cause, after reasonable mixing" the matters as defined in

Section 70 of RMA including in item (v) "toxicity to aquatic ecosystems". I note that the Rule does not specify that Schedule D has to be complied with in contrast to specific discussion identified elsewhere in the Proposed Plan in relation to meeting values in receiving water management zones.

50. Rule 13-22 also identifies that the discharges of persistent and harmful contaminants" is Non Complying. Specific persistent contaminants are identified in the Rule. All road runoff in urban and rural runoff contains polyaromatic hydrocarbons (PAHs) generated from fuel and oil combustion (refer Kennedy 2003). Does that imply by default that all urban stormwater runoff is non-complying? The application of this Rule 13-22 requires better definition to be applicable to specific sources containing PAHs but not to include stormwater as a non complying activity due to the presence of PAHs.

WASTEWATER DISCHARGES

51. There are a large number of waste water discharges to waterways within the Horizons region. In my reading of the Proposed Plan Chapter 13 on discharges to water and land, I noted that the Chapter dealt with on-site disposal systems, but I did not find any guidance in relation to community wastewater systems involving discharges to waters. I have assumed that all are subject to the requirements of meeting the receiving value goals/standards of Schedule D.

52. I have read the revisions to Schedule D as set out in the report of Maree Ellen Clark (Table 13) and concur with the majority of the technical changes. The one change recommended that I would comment on is the recommended change to $cBOD_5$ on the basis of information presented by Dr Quinn.

53. It has been recommended that the receiving environment limit be set as soluble $cBOD_5$ rather than total $cBOD_5$. In terms of immediate effects I generally agree that the soluble measure is more appropriate. However, the measurement of soluble BOD_5 should not be made at the loss of information from total $cBOD_5$ measurements. Total BOD_5 load is a key measure in my view in relation to whole river assessments particularly in relation to matters such as potential benthic oxygen demand.

54. Nutrient management is probably the most complex area from a water quality point of view in the POP and this is reflected in the amount of information produced and the work undertaken by Horizons staff. This is justified by the overall condition of many of the

region's rivers. However, even though I have read through the background technical information and reviewed the 'standards' proposed in Schedule D, I am still unclear as to how the standards as receiving water goals set to achieve identified management unit values will be met. This is an important matter to the councils that operate community wastewater schemes and are involved in consenting discharges to the regions waterways.

55. I have been involved in assessing nutrient discharges from a range of wastewater treatment plants and the associated effects in receiving environments and the effects of those discharges vary. Where wastewater treatment plants have been identified as potentially significant contributors of nitrogen and phosphorous, evaluation of catchment wide nutrient sources has shown that wastewater treatment plants are often minor contributors compared to the mass load generated from diffuse runoff within catchment which have a strong agricultural influence. This also appears to be the case in many of the Horizons region catchments.

56. It is also evident that managing nutrient loads within catchments to meet receiving environment goals is not a short term task and may require planning and management horizons extending at least 50 years. The Proposed Plan will have schedules for the introduction of water quality standards. It is my view that Horizons require to have a pragmatic approach to the management of nutrient loads following the formal acceptance of those dates. Horizons will also need to have in place a draft strategy as to how it aims to achieve the required reductions in nutrient loads to meet the goals.

57. I note for completeness that Schedule D provides for low concentrations of dissolved reactive phosphorous (DRP) and soluble inorganic nitrogen (SIN) to be met or achieved in receiving environments. These goals have been established through the work of Biggs (2000) and as far as I understand in situations where ammonia is absent provide a very useful tool to manage periphyton growth. However technically the SIN in Schedule D is the sum of NO_3, NO_2^- and NH_4^+. The periphyton guidelines can effectively be used to determine alternate guideline values that may achieve substantial improvement in periphyton biomass in those Horizons rivers with gravel and stony river beds. I would note two points in relation to the periphyton nutrient goals.

58. First, Schedule D establishes an ammoniacal-nitrogen limit to prevent toxicity to aquatic biota. However ammoniacal-nitrogen is also a contributor to biological growths in waterways and as such the allowance of concentrations up to 0.4 g/m^3 will provide

nitrogen in an available form to periphyton and macrophytes. Second, the periphyton guidelines do not apply to all waterways and some lowland soft bottom waterways where they occur are likely to be able to tolerate higher concentrations of SIN without significant adverse effects.

59. The identification of the SIN concentrations in Schedule D is likely to have a significant implication on the territorial authorities in the Horizons region that operate and discharge treated wastewater to rivers and streams. The economic penalty of having to meet the Schedule D "not to exceed standards" is likely to be high but has not been assessed. Point Source discharges operated by the territorial authorities should not be penalised at the expense of managing diffuse contributions where it is known that diffuse contributions are the most significant catchment contributors.

60. I am of the view that there may well have been alternate approaches that could have been utilised to achieve the required long term goals and outcomes. I note that I am in favour of the setting of water quality guidelines for receiving environments where desired values are to be protected. One of the more pragmatic approaches may have been in certain rivers and catchments where goals are currently not being met to set stepwise guidelines that are stepped every 10 years with the aim being to reach the current Schedule D goals for nutrients at some time in the future. This allows reasonable time for improved education, changes to farm practices, modifications to individual and community wastewater and other treatment systems to be implemented.

CONCLUSIONS

61. In summary my evidence on behalf of the TAs has discussed a number of matters, but has focussed principally on the use of Schedule D in the Proposed Plan. The key matters that I would emphasise are as follows:

(a) The ANZECC trigger values used in Schedule D are not water quality standards (values not to be exceeded) and were not intended for that use. The trigger values were developed to be used as the start of an assessment process that is not embodied in the Proposed Plan. As it stands, the values in Schedule D have in my opinion, status as a Rule when they should be a Guideline.

(b) The ANZECC values used in Schedule D are no-effects based water quality trigger values and as such there is conservatism built into their use.

(c) It is likely that the trigger values in ANZECC (2000) will be revised within 24 months which may not be long after the Plan hearings are complete, subject to any appeals. There appears to be no process in place for incorporating such amendments if they arise and changes to the Schedule D water quality 'standards' that should be made as a result of those changes. Horizons should evaluate whether it can create a mechanism within the Proposed Plan to allow for such changes.

(d) The Proposed Plan does not recognise issues that are likely to arise for councils required to meet the Schedule D standards in relation to stormwater management, in particular the potential economic consequence.

(e) The Proposed Plan needs to recognise that nutrient management to achieve defined receiving environment goals is a very long term goal and that the identification of not to be exceeded standards as set out in Schedule D may not be the most effective way of achieving the goals set out by Horizons in the Propsoed Plan. Territorial authorities managing wastewater for communities should not be penalised in the short term in relation to managing nutrient loads where it is known that diffuse sources are the primary contributor in a WQMZ.

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Paul Kennedy

19 October 2009