

IN THE MATTER of the Resource Management
Act 1991

AND

IN THE MATTER Plan Change 1 – (Waikato and
Waipa Catchments) to the
Waikato Regional Plan.

**PRIMARY STATEMENT OF EVIDENCE OF GILLIAN MARY CROWCROFT
ON BEHALF OF MERCURY NZ LIMITED (SUBMITTER NUMBER 73182)**

HEARING BLOCK 1 – TOPIC B

15 FEBRUARY 2019

1. EXECUTIVE SUMMARY

- 1.1 I have been engaged by Mercury NZ Limited (**Mercury**) to provide planning evidence in relation to its submission on Plan Change 1 (**PC1**) to the Waikato Regional Plan. Mercury has interests in the Waikato River catchment as an electricity generator and operator of the Waikato Hydro Scheme. Mercury also operates geothermal power stations in the Waikato Region (Rotokawa, Nga Awa Purua, Ngatamariki and Mokai). These rely on freshwater from the Waikato River for operational and drilling purposes. I consider that the collaborative process used by the Healthy Rivers project partners (to identify values and develop objectives, policies, and methods for improving water quality in the Waikato and Waipa rivers) is an example of good planning practice. I am aware that Mercury supports continued collaboration to implement the policies and methods of PC1.

Values and uses

- 1.2 The values and uses for the Waikato and Waipa Rivers are clearly articulated and illustrated in section 3.11.1 of PC1. Mercury supported the section and sought in its submission that it be retained in the same or similar form (PC1-9503 and PC1-11308).
- 1.3 The Officers recommend changes (paragraph 165) to the values and uses section. In my opinion, the recommended changes do not accurately reflect the inputs to determining the values and uses for the Waikato and Waipa Rivers. The section should include reference to the input from the regional community through the collaborative process and should retain reference to the National Policy Statement for Freshwater Management (**NPS-FM**). In my evidence (paragraph 4.3) I propose revised wording.
- 1.4 In the section 42A analysis of values and uses (paragraph 176) the Officers note that:

...It may also be appropriate to consider the values as an 'other matter' in accordance with Section 104(1)(c) of the RMA. While not recommended, an option may be to delete the values and uses from PC1 and record them in the Section 32AA Report.

- 1.5** The NPS-FM National Objectives framework (NPS-FM Policy CA2) prescribes a process for setting freshwater objectives, which is based on understanding the water body values and the desired state of freshwater to achieve those values. Freshwater values are central to the process of developing freshwater plan provisions and giving effect to the NPS-FM. For this reason, I do not support the deletion of the values and uses section from PC1.

Objective 2

- 1.6** Mercury's submission point (PC1-9506) on Objective 2 supported the Objective with minor amendments. The Council's track change version (at paragraph 368 section 42A report) shows a proposed amendment to include reference to the Waipa River catchment as requested by Mercury. I support this inclusion. However, the track change version does not pick up the full text requested by Mercury which sought inclusion of the recognition of the benefit to regional and national communities and economies from the restoration and protection of the Waikato and Waipa Rivers. I propose that Objective 2 is amended as proposed by Mercury in their submission on PC1. The wording is provided in my evidence (paragraph 5.4).

Objective 4

- 1.7** I do not support the Officers' recommendation (paragraph 417 section 42A report) to delete Objective 4. I agree with the Officers' opinion that Objective 4 is not well drafted. However, Objective 4 recognises that to achieve Objective 1 a staged approach to contaminant reduction is required. Over that time and across generations people and communities can adaptively manage their processes while continuing to achieve their social, economic and cultural wellbeing.
- 1.8** As an alternative to deleting Objective 4, the Officers propose an amended version (paragraph 423 section 42A report). In my opinion, the amended objective goes some way to improving the notified version but I do not support the deletion of text referring to "considering the values and uses". The NPS-FM requires freshwater objectives to be set with reference to the values for freshwater in a Freshwater Management Unit (**FMU**), so it is appropriate that PC1 gives regulatory weight to the values and uses that have been identified with the community and tangata whenua in order to provide context for decision making. Objective 4 is the only reference to

those values and uses in notified version of PC1. In my evidence (paragraph 5.12) I propose revised wording for Objective 4.

FMU

- 1.9** I support the Officers' recommendation (paragraph 487 section 42A report) to retain the scale at which FMUs in PC1 are set in the Waikato and Waipa River catchments, rather than setting FMUs at a sub-catchment scale.

Targets and Limits (Table 3.11-1)

- 1.10** With respect to PC1 Targets and limits, I agree with the Officers that the use of targets in PC1 is not aligned with the NPS-FM definition of 'target'. I support the Officers' recommendation (paragraph 335 section 42A report) to accept submitters' amendments to more appropriately classify the long-term water quality targets as "water quality states" as indicated in Table 3.11-1 in the track change version and the objectives that refer to them.

Priorities (Table 3.11-2)

- 1.11** I support the Officers' recommended amendments to Table 3.11-2 to lift the priority of several Upper Waikato FMU sub-catchments (paragraph 652 section 42A report).

2. INTRODUCTION

Qualifications and experience

- 2.1** My full name is Gillian Mary Crowcroft. I hold the position of Environmental Lead for Harrison Grierson Consultants Limited, a multi-disciplinary consulting company with eight offices throughout New Zealand.
- 2.2** I have a Master of Science Degree (with Honours) majoring in Earth Science from the University of Waikato. I completed my Masters Thesis on the Groundwater resources of the Mangaone and Mangonua catchments in the Waikato Catchment in 1992. Since then I have had some 26 years' resource management experience. I have worked as a scientist, policy analyst, and water strategy and policy manager in both the public and private sectors. I am a full member of the New Zealand Hydrological Society.
- 2.3** I undertake resource management work for a range of local authority, utility and developer clients throughout New Zealand. My advice and project work typically relate to strategic planning, project management, policy analysis or resource consent matters. During my career, I have been involved in several plan development and resource consent processes relating to regional issues, particularly water resource management.
- 2.4** While at Auckland Regional Council I was involved in the development of policy and plan provisions in the Auckland Regional Council - Air, Land and Water Plan particularly with respect to water resource management and drilling. In 2010, I led the project team to making the plan operative in part.
- 2.5** At Auckland Council I project lead "Wai ora Wai Maori". The project was initiated in 2011 to evaluate options to give effect to the NPS Freshwater Management in the Auckland Region.

Expert witness Code of Conduct

2.6 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. While this Code of Conduct has been developed by the Environment Court, its principles are applicable for expert witnesses at any kind of hearing. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise.

This evidence

2.7 I have been engaged by Mercury NZ Limited (**Mercury**) to provide planning evidence in relation to its submission on Plan Change 1 (**PC1**) to the Waikato Regional Plan.

2.8 I note that section 2 of Mercury's submission provides an outline of its background and interests in the Waikato Region. By way of summary:

- Mercury is the third largest electricity generator and third largest electricity retailer in NZ;
- 100% of Mercury's generation comes from renewable resources (hydro and geothermal);
- On the Waikato River Mercury owns and operates the nine hydro power stations that make up the Waikato Hydro Scheme;
- The Waikato Hydro Scheme has a total net capacity of approximately 1,052 MW and produces about 10% of New Zealand's electricity;
- Water storage in Lake Taupo largely dictates how much water flows down the Waikato River from Lake Taupo. This, together with flows from downstream tributaries means the Waikato Hydro Scheme is essentially a 'run of river' scheme;
- Hydro generation can be increased or decreased quickly to match demand and especially peak demand for electricity in the upper North Island;
- Waikato Regional Council as flood manager, works closely with Mercury during high flow events to manage the release of water through the Scheme to moderate the effects of flooding on Taupo and lower Waikato communities;

- The Waikato Hydro Scheme provides ecosystem services such as fisheries and edge wetlands as well as numerous recreational activities such as fishing, boating and international rowing.
- Mercury owns and/or operates four geothermal power stations (Rotokawa, Nga Awa Purua, Ngatamariki and Mokai) in the Waikato Region with a total net capacity of approximately 367 MW. These geothermal generation activities rely on freshwater from the Waikato River for operational and geothermal well drilling purposes.

2.9 I have read the Statement of Primary Evidence of Mr Dean Miller, also prepared in support of Mercury’s submission and addressing technical matters. My evidence should be read in conjunction with Mr Miller’s.

2.10 I have reviewed Council’s Section 42A report and the track changes version of PC1 (**track change version**). In my evidence, I use the structure of the section 42A report to comment on Mercury’s submission points and whether they have, or have not, been addressed satisfactorily from my perspective. I refer to the authors of the section 42A report collectively as ‘Officers’ in my evidence.

3. B1 OVERALL DIRECTION OF PC1

3.1 Mercury’s general submission (PC1-9474) supports the overall direction of PC1, to give effect to the Vision and Strategy for the Waikato River and the National Policy Statement for Freshwater Management 2014 (**NPS-FM**), and thereby improve water quality.

3.2 Mercury supports the long-term restoration of water quality in the Waikato and Waipa Rivers and the staged approach to meeting the water quality states by 2096. The staged approach recognises that the 80-year water quality targets will be achieved across several generations and that people and communities must be able to ensure their social, economic and cultural wellbeing while adapting management responses to achieve the water quality objectives.

3.3 Mercury supports the use of water quality targets and states for nitrogen, phosphorus, sediment and microbial pathogens and the endeavours of land

users to reduce the flows of these from land to the Waikato and Waipa Rivers.

- 3.4** Mercury's general support for PC1 reflects its commitment to work with the regional community to achieve the broad objectives, strategies and vision of Te Ture Whaimana o Te Awa Waikato (the Vision and Strategy for the Waikato River) and, where consistent, give effect to both the National Policy Statement for Renewable Electricity Generation and the NPS-FM. These NPS's intersect where policy decisions are to be made that affect the level of recognition and provision to be made for renewable electricity generation activities (inclusive of the Waikato Hydro Scheme and geothermal power development) in the catchment.
- 3.5** I support the general direction of PC1 and its contribution to achieving the Vision and Strategy for the Waikato River and giving effect (in part) to the NPS-FM.

4. B2 VALUES AND USES

- 4.1** Mercury's submission point (PC1-9503 and PC1-11308) on 3.11.1 'Values and Uses for the Waikato and Waipa Rivers' supported the conceptual diagram and the articulation of values in sections 3.11.1 1 and 3.11.1.2. Mercury's submission sought to retain the section in the same or similar form.
- 4.2** In the section 42A report (paragraph 165) the Officers recommend deletion of the opening paragraph and propose a new paragraph in its place. I agree with the Officers' recommended deletion.
- 4.3** However, in my opinion the recommended text insertion does not accurately reflect the sources of information that guided the development of the values and uses for the Waikato River. The section should include reference to the input from the regional community through the collaborative process and should retain reference to the NPS-FM. I propose inclusion of additional wording to the Officers' recommended changes (Officers' recommended deletions and insertions are shown as ~~striketrough~~ and underline; and my insertions are shown in double underline):

~~The National Policy Statement – Freshwater Management Policy CA2 requires certain steps to be taken in the process of setting limits. These include establishing the values that are relevant in a FMU, identifying the attributes that correspond to those values, and setting objectives based on desired attribute states. This section describes values and uses for the Waikato and Waipa Rivers, to provide background to the objectives and limits in later sections.~~

This section describes the values and uses for the Waikato and Waipā Rivers. The values and uses reflect the Vision and Strategy for the Waikato River and input from the regional community while also reflecting the compulsory and national values prescribed in the National Policy Statement for Freshwater Management. The values and uses set out below apply to all FMU's unless explicitly stated, and provide background to the freshwater objectives, and the attributes and attribute states outlined in Table 3.11-1.

4.4 The Officers also recommend (paragraph 177 section 42A report) removing the first heading from each value. I support the recommendation as it removes unnecessary repetition and makes the section clearer.

4.5 In the section 42A analysis of values and uses (paragraph 176) the Officers note that:

...It may also be appropriate to consider the values as an 'other matter' in accordance with Section 104(1)(c) of the RMA. While not recommended, an option may be to delete the values and uses from PC1 and record them in the Section 32AA Report.

4.6 I do not support the deletion of the values and uses section from PC1. The values and uses section provides the broader context for the Waikato and Waipa Rivers. The National Objectives Framework (set out in the NPS-FM Policy CA2) prescribes a nationally consistent approach to establish freshwater objectives for national values, and any other values, which is based on understanding the water body values and the desired state of freshwater to achieve those values. The subsequent cascade of freshwater policies and methods must then also reflect these values and uses. Removing the values and uses section from PC1 therefore removes the foundation on which the freshwater provisions are developed. I recommend

that the values and uses in 3.11.1.1 and 3.11.1.2 be retained as shown in the track change version.

5. B4 OBJECTIVES

Objective 1

- 5.1** Mercury's submission point (PC1-9504) supported Objective 1 wording in the notified, or similar, form. This is because Mercury supports the long-term restoration of the Waikato and Waipa Rivers through the reduction in the discharges of nutrients, sediment and pathogens and recognises a staged approach is needed to achieve that goal.
- 5.2** The track changes version of PC1 recommends some minor amendments to the notified version of the objective, which in my view, do not fundamentally change the intent of the objective. Therefore, I am supportive of the Officers' recommended amendment to Objective 1 (paragraph 346 section 42A report).
- 5.3** I note that in the analysis of submissions (paragraphs 337 and 338 section 42A report) the Officers do not recommend amending Objective 1 to take into consideration the impact on water quality of factors that sit outside the control of the Regional Plan e.g. aquatic pest species; Canadian geese. I agree with the Officers that out of scope matters, irrespective of merit, should not be incorporated in the plan change. This is consistent with several of Mercury's further submissions points.

Objective 2

- 5.4** Mercury's submission point (PC1-9506) on Objective 2 supported the Objective with minor amendments. The Council's track change version (at paragraph 368 section 42A report) shows a proposed amendment to include reference to the Waipa River catchment as requested by Mercury. I support this amendment.
- 5.5** However, the track change version does not pick up the full additional text that Mercury requested, being the inclusion of the recognition of the benefit to regional and national communities and economies from the restoration and protection of the Waikato and Waipa Rivers. Such benefits are relevant

considerations and I therefore request that the Objective is amended to read (Officers' recommended insertions are shown as underline; and my insertions are shown in double underline):

Waikato and Waipa communities and their economy (as well as the regional and national communities and economies) benefit from the restoration and protection of water quality in the Waikato and Waipa River catchments, which enables people and communities to continue to provide for their social, economic and cultural wellbeing.

Objective 3

- 5.6** Mercury's submission point (PC1-9511 and PC1-11312) on Objective 3 supported the Objective wording as notified, or similar form. The track change version of PC1 shows deletions and insertions that I consider improve the clarity of the objective. The notified objective included an explanation of short-term targets and percentage reductions that did not improve its intent. For this reason, I support the Officers' proposed amendments (paragraph 400 section 42A report).

Objective 4

- 5.7** Mercury's submission point (PC1-9514) on Objective 4 supported the wording in the notified PC1 or similar form, particularly the reference to 'values and uses' in clause (a). As I have explained earlier in my evidence (see paragraphs 4.1 – 4.6), the values and uses provide the foundation on which the freshwater provisions are developed and therefore are an important consideration for establishing the actions to achieve attribute states in the Waikato and Waipa Rivers.

- 5.8** The Officers recommend (paragraph 417 section 42A report) deleting Objective 4 or, in the alternative, amending it. The Officers' reasons for recommending deleting Objective 4 are that it:

...does not describe an outcome or future state, but rather outlines implementation methods and a programme for future intervention, which are typically contained in policies and rules (s67(1) (b) and (c) of the RMA).

The Officers go on to note that the deletion of the objective will have little consequence as these matters are well covered by Policies 5 and 7.

- 5.9** I do not agree with deleting Objective 4. Objective 4 articulates the goal of achieving the long-term restoration of the Waikato and Waipa Rivers through a staged approach. It also seeks to enable people and communities to continue to provide for their wellbeing.
- 5.10** As an alternative to deleting Objective 4, the Officers propose an amended version (paragraph 423 section 42A report). In my opinion, the Officers recommended amendments to the objective go some way to improving the notified version. However, I do not support the deletion of text referring to “considering the values and uses”. Given the NPS-FM requirement in Policy CA2 for freshwater objectives to be based on the values for freshwater in a freshwater management unit (“**FMU**”), it is appropriate to give regulatory weight to the values and uses that have been identified, in conjunction with the community and tangata whenua, in the regional plan. In this case the values and uses are set out in Section 3.11.1 but the reference in Objective 4 is the only reference to those values and uses in PC1.
- 5.11** It is also appropriate that future decisions reference the values that the community has identified for the rivers and this can only be achieved through the freshwater objectives. For example, in describing the social, economic and cultural wellbeing that is derived by the community by reference to the values and uses associated with the freshwater resources of the FMU. These are as relevant for the intrinsic / ecosystem health values of the FMU as they are for the use values of water resources.
- 5.12** I therefore do not fully support the Officers’ recommended alternative version of Objective 4 and I propose the following (Officers’ recommended deletions and insertions are shown as ~~strike through~~ and underline; and my insertions are shown in double underline):

A staged approach to reducing contaminant losses ~~change~~ enables people and communities to ~~undertake adaptive management~~ to continue to provide for their social, economic and cultural wellbeing in the short term while:

- a. ~~considering the values and uses~~ considering the values and uses when taking action to achieve the attribute ~~targets~~ states for the Waikato and Waipa Rivers in Table 3.11-1; and*
- b. recognising that further contaminant reductions will be required by subsequent regional plans ~~and signalling anticipated future~~*

management approaches that will be needed in order to meet Objective 1.

6. B5 FRESHWATER MANAGEMENT UNITS, SUB-CATCHMENTS AND TABLES 3.11-1 AND 3.11-2

Freshwater Management Units

6.1 Mercury's submission points on PC1 3.11 'Area covered by Chapter 3.11' (PC1-9486) and FMU Map 3.11-1 (PC1-9682) supported the scale at which FMUs have been delineated and sought to retain them in the same or similar form. The Officers (paragraphs 486 and 487 section 42A report) considered the setting of FMUs at a finer scale i.e. sub-catchment but recommend retaining FMUs as notified. I support the Officers' recommendation to retain the scale of FMUs.

6.2 However, my reasons for retaining the scale of FMUs as notified are different to those considered in the Section 42A report. The NPS-FM definition of an FMU is:

***"Freshwater management unit"** is the water body, multiple water bodies or any part of a water body determined by the regional council as the appropriate spatial scale for setting freshwater objectives and limits and for freshwater accounting and management purposes.*

6.3 The Officers only refer to the FMU as the scale for setting objectives and limits. The FMU scale is also for accounting and management purposes, i.e. to enable monitoring of progress towards meeting water quality targets and limits established by the actions in the sub-catchments that make up the FMU. Freshwater accounting and reporting across 74 FMUs will be a significant cost for Waikato Regional Council and increasing the number of FMUs is unlikely to contribute to achieving improvement in water quality in the Waikato and Waipa catchments. Consequently, from an outcomes and practicality perspective I support the retention of the as notified spatial scale of FMUs.

Targets and Limits (Table 3.11-1)

6.4 Mercury's submission (PC1-9679) on Table 3.11-1 supported and opposed the Targets and Limits in part.

- 6.5** Mercury supported the principle of PC1 to use short term and long-term numerical water quality targets to achieve Objectives 1 and 3 and for the targets not to be used as receiving water compliance limits/standards.
- 6.6** I note that the Officers (in paragraph 335 section 42A report) recommend accepting the suggested amendments from Fonterra, GBC Winstone and Fulton Hogan Ltd to more appropriately classify the long-term water quality targets as “water quality states”. I agree with the submitters and the Officers that the use of “targets” in PC1 is not aligned with the **NPS-FM** definition of “target”. I therefore support the Officers’ recommendation to use the term “water quality states” as indicated in Table 3.11-1 in the track change version and the objectives that refer to them.
- 6.7** Mercury’s opposition to Table 3.11-1 was largely related to its view that further sub-catchment delineation is needed. This is addressed in detail in the evidence of Mr Dean Miller prepared for Mercury (refer to paragraphs 4.8 to 4.18 of his evidence) and I agree with his assessment that further analysis of sub-catchment delineation in the Upper Waikato FMU is needed.
- 6.8** I support the Officers’ recommendations for minor changes to improve the clarity of Table 3.11-1. These include:
- (a) Table headings on each page of the table
 - (b) Inclusion of catchment numbers

Priorities (Table 3.11-2)

- 6.9** Mercury’s submission (PC1-9680) on Table 3.11-2 supported the prioritisation of sub-catchments. The section 42A report (paragraph 652) has recommended that three Waikato main stem sub-catchments within the Upper Waikato FMU be reprioritised in Table 3.11-2 from a priority 3 to a priority 1. This may result in more active management of the sediment issue raised by Mercury in its submission (PC1-9511) on Objective 3 being addressed in some sub-catchments sooner than would have been expected in the notified version of PC1. Therefore, I support the Officers’ recommended amendments to Table 3.11-2 to lift the priority of Upper Waikato FMU sub-catchments.

Gillian Mary Crowcroft

15 February 2019

APPENDIX 1: CHANGES TO PC1 PROVISIONS SOUGHT

Note that the Officers' recommended deletions and insertions are shown as ~~strikethrough~~ and underline. My insertions are shown in double underline.

3.11.1 Opening paragraph (submissions PC1-9503 and PC1-11308)

~~The National Policy Statement – Freshwater Management Policy CA2 requires certain steps to be taken in the process of setting limits^Δ. These include establishing the values that are relevant in a FMU, identifying the attributes^Δ that correspond to those values^Δ, and setting objectives based on desired attribute states^Δ. This section describes values and uses for the Waikato and Waipa Rivers, to provide background to the objectives and limits^Δ in later sections.~~

This section describes the values and uses for the Waikato and Waipā Rivers. The values and uses reflect the Vision and Strategy for the Waikato River and input from the regional community while also reflecting the compulsory and national values prescribed in the National Policy Statement for Freshwater Management. The values and uses set out below apply to all FMU's unless explicitly stated, and provide background to the freshwater objectives, and the attributes and attribute states outlined in Table 3.11-1.

Objective 2 (submission PC1-9506)

Waikato and Waipa communities and their economy (as well as the regional and national communities and economies) benefit from the restoration and protection of water quality in the Waikato and Waipa River catchments, which enables people and communities to continue to provide for their social, economic and cultural wellbeing.

Objective 4 (submission PC1-9514)

A staged approach to reducing contaminant losses ~~change~~ enables people and communities to ~~undertake adaptive management~~ to continue to provide for their social, economic and cultural wellbeing in the short term while:

- a. ~~considering the values and uses~~ considering the values and uses when taking action to achieve the attribute ~~targets~~ states for the Waikato and Waipa Rivers in Table 3.11-1; and
- b. recognising that further contaminant reductions will be required by subsequent regional plans ~~and signalling anticipated future management approaches that will be needed~~ in order to meet Objective 1.