

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of **PROPOSED PLAN CHANGE 1** to the Waikato Regional Plan – hearing of **BLOCK 1** topics

AND

IN THE MATTER of the hearing of the further submission by **WAIKATO REGION TERRITORIAL LOCAL AUTHORITIES COMPRISING THE WARTA GROUP** in relation to **BLOCK 1** topics

SUPPLEMENTARY STATEMENT OF EVIDENCE OF TIMOTHY NORMAN HARTY

1. INTRODUCTION

- 1.1 My name is Timothy Norman Harty. I have outlined my qualifications, experience and commitment to comply with the Environment Court Expert Witness Code of Conduct in my evidence in chief.
- 1.2 During the presentation of the Waikato Region Territorial Authorities Group's ("WARTA") case in the Block 1 hearings, Commissioner Morrison indicated that supplementary evidence from WARTA would be helpful with respect to point source discharges from wastewater treatment plants ("WWTPs") that discharge directly or indirectly into the Waikato River or Waipa River. In that regard, Commissioner Morrison requested the following information:
 - (a) Location of the WWTPs.
 - (b) Consent expiration dates.
 - (c) Types of treatment.
 - (d) Discharge methods.

- (e) Extent of mixing zones.
- (f) Compliance with conditions of consent.
- (g) Opportunities for review of consent conditions.

Purpose of evidence

- 1.3 The purpose of this supplementary evidence is to provide the information requested and provide some brief comments on that information.
- 1.4 The information requested is contained in the map **attached** as **Appendix 1** and the spreadsheet **attached** as **Appendix 2**. Below I provide some comments on the information¹.

2. COMMENTS ON THE INFORMATION

- 2.1 The attached information was compiled by identifying all of the WWTPs located inside the Waikato River Catchment. Private WWTPs (Tokanui, Waitomo, and Waikeria Prison) were omitted due to no specific information being available.

Treatment type and discharge method

- 2.2 The information on treatment type was sourced from "Cost Estimates for upgrading WWTPs to meet Objectives of the NPS Freshwater" for the Department of Internal Affairs (the "DIA report").
- 2.3 The WWTP discharge type was classified as either Land or River depending on whether the WWTP discharged to land (e.g. irrigation fields) or directly to a body of water (river, stream, or lake). This information was primarily sourced from the DIA report, with updates being made based on WWTP resource consent information provided by Waikato Regional Council ("WRC").
- 2.4 The discharge method used at each WWTP was sourced from the resource consents for each WWTP and operation and maintenance manuals provided by WRC.

Mixing zones

- 2.5 As noted in my evidence for the Block 1 Hearings, a mixing zone is a designated area of a stream or river into which wastewater from a point source discharge undergoes initial dilution in the receiving water. The

¹ The map and table includes some WWTPs in Taupo District which are outside of the PC1 area

mixing zone length is a specified distance from a point source discharge at which the wastewater has been diluted to a negligible level.

- 2.6 Mixing zone length varies according to circumstances of each discharge, so mixing zones have to be assessed on a case-by-case basis.
- 2.7 The information on mixing zones was sourced from the relevant resource consents. Mixing zone conditions are only applicable to WWTPs that discharge to water. Not all WWTPs discharging to water had mixing zone conditions in their consent and there are various reasons for this. Some, such as the Cambridge Wastewater Treatment Plant, discharge to rapid infiltration beds where the treated effluent is dispersed through land before contact with the river. Others are older consents, such as Tokoroa, and may have mixing zone conditions added as the consents are renewed.

Expiration date and status

- 2.8 The expiration dates of the consents range from 31 December 2011 (Tokoroa WWTP) to 21 October 2052 (Pukekohe WWTP). Consents classified as 'Current' are currently operating under the given consent. Consents classified as 'Lodged' are WWTPs where the previous consent has expired but an application for a new consent was lodged in time to receive section 124 protection under the Resource Management Act 1991 ("RMA"), so that the relevant WWTP can continue to operate under its existing consent until the new application is finally determined.
- 2.9 The following seven WWTPs are operating pursuant to the protection provided by section 124 of the RMA:
 - (a) Cambridge WWTP – Waipa District Council.
 - (b) Tokoroa WWTP – South Waikato District Council.
 - (c) Mangakino WWTP – Taupo District Council.
 - (d) Taupo WWTP – Taupo District Council.
 - (e) Motutere WWTP – Taupo District Council.
 - (f) Omori WWTP – Taupo District Council.
 - (g) Turangi WWTP – Taupo District Council.
- 2.10 Information on when the consent conditions can be reviewed is included in Appendix 2.

Compliance

2.11 The compliance rating for the most current monitoring year available for each WWTP is included in the information in Appendix 1 and Appendix 2. Compliance information was obtained from WRC compliance reports. The compliance ratings are as follows:

- (a) Fully compliant – All conditions that include limits or other direct controls on adverse effects have been complied with. A small number of minor technical non-compliances may have occurred.
- (b) High level of compliance – There has been a low priority non-compliance; and/or there have been several minor technical non-compliances.
- (c) Partial compliance – There has been a medium priority non-compliance; and/or there have been several low priority non-compliances.
- (d) Significant non-compliance – There has been a high priority non-compliance; and/or there have been several medium priority non-compliances.

2.12 Full details of the various WRC compliance ratings report, are provided in Appendix 3.

Plan Change 1 targets / limits

2.13 The data on whether the WWTPs will meet the proposed Plan Change 1 ("PC1") targets / limits is based on the evaluation of the WWTPs in the DIA report. It was assumed that WWTPs that failed to meet the National Policy Statement Freshwater ("NPS-FW") Attribute State B for wastewater discharge would also fail to meet the PC1 targets / limits. That is because the NPS-FW Attribute State B to be has lower targets / limits than are required under PC1. WWTPs that were not assessed in the DIA report have been classified as 'Not Assessed.'

Timothy Norman Harty

5 July 2019

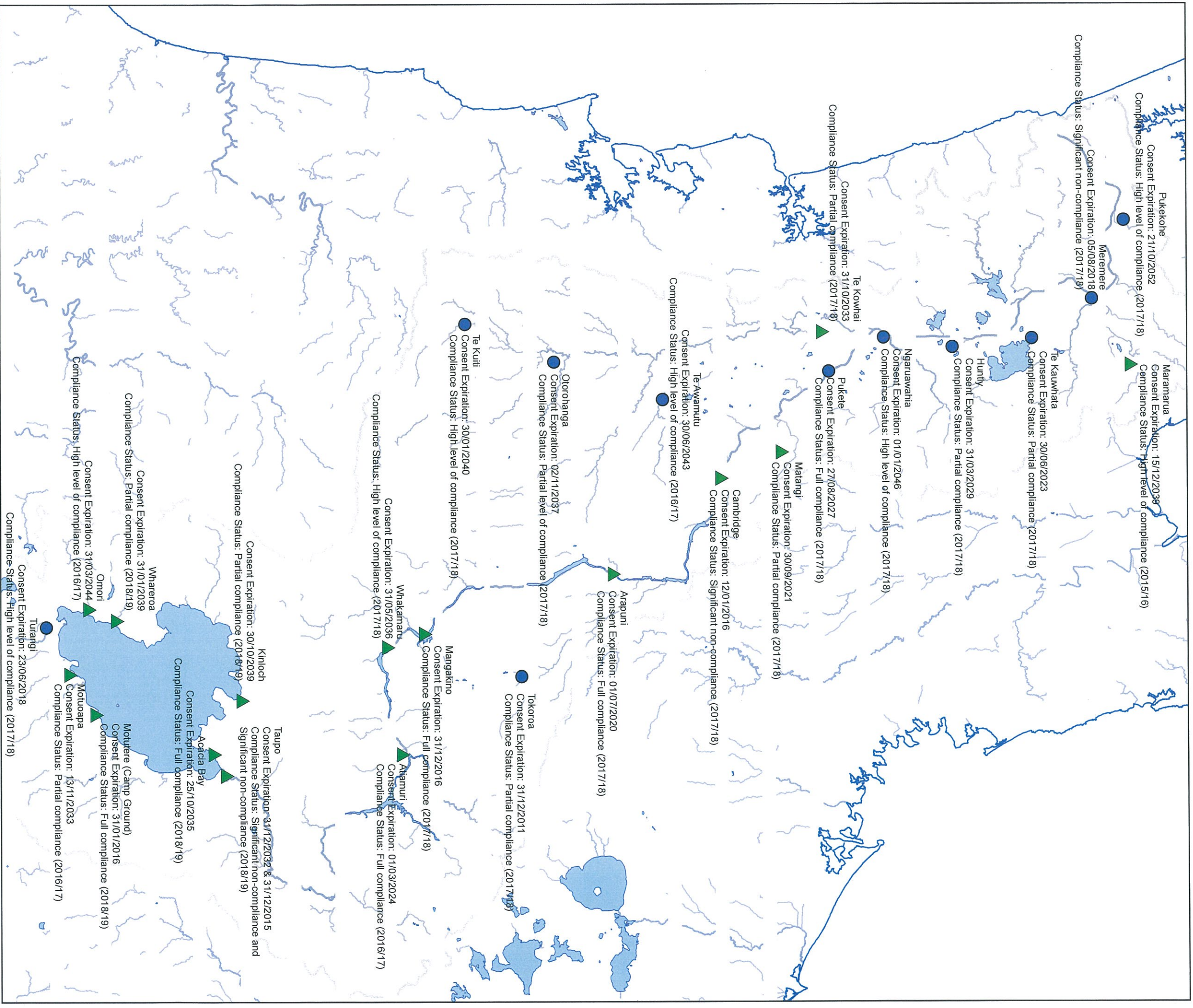
APPENDIX 3

COMPLIANCE STATUS FOR INDIVIDUAL CONDITIONS

Compliance Status	Description
Not assessed	Monitoring of this condition was not undertaken during this monitoring event
High priority non-compliance	The non-compliance has the potential for, or has resulted in, significant adverse effects on the environment.
Medium priority non-compliance	There is non-compliance with limits or other direct controls on adverse effects; and The non-compliance has the potential for, or has resulted in, a greater than minor increase in the level of effects authorised.
Low priority non-compliance	There is non-compliance with limits or other direct controls on adverse effects; and The non-compliance has the potential for, or has resulted in, a less than minor increase in the level of effects authorised; and/or There has been a significant technical non-compliance such as a failure to collect or supply self-monitoring data.
Minor technical non-compliance	There is non-compliance with a condition, or part of a condition, that does not directly control adverse effects; and The non-compliance was not significant in the management of effects. For example a short delay in supplying data or meeting a deadline for a report
Full Compliance	The condition has been complied with
Compliance status for individual consents and the entire site	
Compliance Status	Description
Not assessed	Monitoring has not been undertaken at this site during the current financial year
Significant non-compliance	There has been a high priority non-compliance; and/or There have been several medium priority non-compliances.
Partial compliance	There has been a medium priority non-compliance; and/or There have been several low priority non-compliances.
High level of compliance	There has been a low priority non-compliance; and/or There have been several minor technical non-compliances.

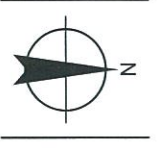
APPENDIX 1

MAP SHOWING LOCATION OF WWTPs



Paper Size A3
 0 5 10 20 30
 Kilometres

Map Projection: Transverse Mercator
 Horizontal Datum: NZGD 2000
 Grid: NZGD 2000 New Zealand Transverse Mercator



Waikato Region Territorial Authorities
 Waikato Regional Plan Change 1
 Waste Water Treatment Plants
 Discharge Environment and
 Consent Compliance Status

Job Number 510908370
 Revision A
 Date 05 Jul 2019

Level 3, 138 Victoria Street, PO Box 13 468, Christchurch 8141, New Zealand T 64 3 378 0918 W www.ghd.com

Figure 1

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 © 2019. While every care has been taken to prepare this map, GHD (and DATA CUSTODIAN) makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unusable in any way and for any reason.
 Data source: Waikato Regional Council compliance monitoring reports and consents. Created by jsullivan

APPENDIX 2

INFORMATION SPREADSHEET

Council	WWTP Name	Treatment Type	Additional Treatment Information	Discharge Type	Discharge Method	Consent Expiration Date	Consent Expiry Date Note	Opportunities for Review in Consent Conditions	Will Meet PC1 Standards	Mixing Zone Condition	Mixing Zone Length (m)	Compliance Information
Watercare	Pukekohe (Friedlander Road)	SBR; Decant Pond; UV; Polishing Wetland; Sludge Oxidation pond		River	Parker Lane Stream via seepage bed	21/10/2052	Current	In the six month period following the 5th, 10th, 15th and 20th anniversaries of commencement (26/10/2017)			Length not specified	High level of compliance (2017/18)
Waikato District Council	Maramarua	Re-circulating sand filter; Effluent tank	Disposal mound	Land	Disposal field	15/12/2039	Current	2019, 2024, 2029 and 2034	Not assessed	N/A	N/A	High level of compliance (2015/16)
Waikato District Council	Meremere	Oxidation pond; UV	Pond includes baffles; Outlet via rock filter	River	Waikato River via diffuser nozzle. Diffuser extends 24 m into the river.	5/08/2018	Current	In the month following the third, sixth, and tenth anniversary of the commencement of the consent (commenced on 5/08/2003)	No	The consent holder shall ensure that after reasonable mixing the discharge does not cause any of the following effects in the Waikato River: (a) The production of any conspicuous oil or grease films, scums, foams, or floatable or suspended materials (b) Any conspicuous change in the colour or visual clarity (c) Any emission of objectionable odour (d) The rendering of fresh water unsuitable for consumption by farm animals (e) Any significant adverse effects on aquatic life	Length not specified	Significant non-compliance (2017/18)
Waikato District Council	Te Kauwhata	Oxidation ponds; Wetlands; Rock Filter	High rate ponds with aquamats	River	Lake Walkere	30/06/2023	Current	In the six month period following receipt of a report submitted in accordance with conditions 5, 6 and 20 of the consent, RWC can serve notice of its intention to review the conditions of the resource consent.	No	No conditions in consent	Length not specified	Partial compliance (2017/18)
Waikato District Council	Huntly	Oxidation ponds; Wetlands; UV	Primary and Secondary with 5 Aerators and a series of curtains	River	Waikato River via multi-port diffuser on bed of river	31/03/2029	Current	In the six month period following 30 September 2015 and every five years thereafter	No	Discharge from ports 1, 3, 5, 7, and 9 is uniform along the operational length of the diffuser and providing effective dispersion of the wastewater in the river flow	Length not specified	Partial compliance (2017/18)
Waikato District Council	Ngaruawahia	Oxidation pond; Actiflo; UV; Gravel bed wetlands		River	Waikato River via multi-port diffuser on bed of river	1/01/2046	Current	In the six month period following 30 September 2015 and every five years thereafter	No	Discharge from ports 1, 3, 5, 7, and 9 is uniform along the operational length of the diffuser and providing effective dispersion of the wastewater in the river flow	Length not specified	High level of compliance (2017/18)
Hamilton City Council	Pukete	Activated sludge; BNR; Anaerobic sludge digester; UV	Alum dosing in summer	River	Multi-port in-river diffuser	27/08/2027	Current	January, February or March of 2013, 2018 and 2023		Uniformity of mixing by sampling surface water at 5 points across the main flow 300 m from outfall	300	Full compliance (2017/18)
Waikato District Council	Te Kowhai	Private septic tanks; Communal septic tank; Re-circulating sand filter		Land	Soakage trench near stream - testing showed no effects on water quality	31/10/2033	Current	In the six-month period following the 5th anniversary of consent commencement, serve notice on the consent holder.	Not assessed	N/A	N/A	Partial compliance (2017/18)
Waikato District Council	Matangi	Septic tank; Trickling Filters	Individual septic tanks pumped to 2 council septic tanks; Pumped to sand contactor beds (~4 passes)	Land	Irrigation field	30/09/2021	Current	Every 5 years from commencement (25/10/2001)	Not assessed	N/A	N/A	Partial compliance (2017/18)
Waipa District Council	Cambridge	Anaerobic pond, Aerated lagoon; Constructed Wetlands		Land	Rapid Infiltration Bed	12/01/2016	Lodged	CURRENT CONSENT: Within six months of the fifth, tenth and fifteenth anniversaries of the issue of the consent. Within twelve months of the sewage treatment plant receiving leachate from the Cambridge Landfill (Consent commenced 17/12/1996)	No		N/A	Significant non-compliance (2017/18)
Waipa District Council	Te Awamutu	Activated sludge; BNR		River	Rock diffuser outfall structure	30/06/2043	Current	Six month period commencing 1 July 2021, and every three years thereafter		Beyond the reasonable mixing zone, the treated wastewater discharge shall not produce the following effects: (a) Conspicuous oil or grease film, scums, foams or floatable or suspended materials in the Mangapiko Stream; or (b) Conspicuously change the turbidity of the Mangapiko Stream; or (c) Conspicuously change the colour of Mangapiko Stream.	100	High level of compliance (2016/17)
South Waikato District Council	Arapuni	Imhoff tank	Sand filter bed	Land	Land disposal area	1/07/2020	Current, but new consent application has been submitted and accepted by WRC, currently on hold pending site visit. Improved treatment has been agreed in collaboration with Iwi and is proposed with conditions to meet PC1	During the six month period following the second anniversary of the commencement of this consent, and during the corresponding six month period every two years thereafter the Waikato Regional Council may, following service of notice on the consent holder	Not Assessed	N/A	N/A	Full compliance (2017/18)
Otorohanga	Otorohanga	Oxidation pond; Constructed wetlands		River	Discharge nozzle	2/11/2037	Current	2017, 2022, 2027, 2032	No	No current conditions	125	Partial level of compliance (2017/18)
Waikato District Council	Te Kuiti	Activated sludge; BNR; UV		River	To Mangaekewa Stream	30/01/2040	Current	2019, 2024, 2029, 2034		The consent holder shall ensure that after no more than 100m downstream of the discharge point, the discharge does not cause any of the following effects in the Mangaekewa Stream: (a) The production of any conspicuous oil or grease films, scums, foams, or floatable or suspended materials (b) Any conspicuous change in the colour or visual clarity (c) The rendering of fresh water unsuitable for consumption by farm animals (d) Any significant adverse effects on aquatic life	100	High level of compliance (2017/18)
South Waikato District Council	Tokoroa	Trickling filters; Submerged biofilm; Tertiary filtration; UV; Anaerobic digestion		River	To Whakauru Stream	31/12/2011	Lodged, new consent application has been submitted and accepted by WRC, currently on hold pending site visit. Improved treatment has been agreed in collaboration with Iwi and is proposed with conditions to meet PC1	CURRENT CONSENT: Review two years after the commencement of the consent and on two-yearly anniversaries of that date thereafter.	No		Length not specified	Partial compliance (2017/18)
Taupo District Council	Mangakino	SAF	Final filtering with 130 µm filter	Land	Subsurface pressure compensating dripper irrigation disposal fields, rapid infiltration trench	31/12/2016	Lodged		Not Assessed	N/A	N/A	Full compliance (2017/18)
Taupo District Council	Whakamaru	Textile bed reactor (as of 2019)		Land	Effluent soakage fields	31/05/2036	Current	May 2021, 2026 and 2031	Not Assessed	N/A	N/A	High level of compliance (2017/18)
Taupo District Council	Atiamuri	Imhoff tank		Land	Effluent soakage fields	1/03/2024	Current	Within three months of the 5th, 10th and 15th anniversaries of the commencement of the consent (6/05/2004)	Not Assessed	N/A	N/A	Full compliance (2016/17)
Taupo District Council	Kinloch	SBR		Land	Effluent soakage fields	30/10/2039	Current	November of 2018, 2023, 2028 and 2033	Not Assessed	N/A	N/A	Partial compliance (2018/19)
Taupo District Council	Acacia Bay	SBR		Land	Effluent soakage fields	25/10/2035	Current		Not Assessed	N/A	N/A	Full compliance (2018/19)
Taupo District Council	Taupo	Trickling Filters; Anaerobic Digesters		Land	Rakaunui Rd land disposal; View Rd land disposal	31/12/2032 & 31/12/2015	Lodged	CURRENT CONSENT: The Council may review the conditions of this permit: i) at any time to implement the findings from the investigations undertaken in accordance with the provisions of condition (h) above; and ii) at five yearly intervals from the date of granting of this permit, for the purpose of dealing with any adverse effects on the environment arising from the exercise of this permit. (Granted on 30/08/1994).	Not Assessed	N/A		Significant non-compliance and Significant non-compliance (2018/19)
Taupo District Council	Whareroa	Oxidation ponds	Aeration and step screen	Land	Spray irrigation to land	31/01/2039	Current	New consent granted 2019	Not Assessed	N/A	N/A	Partial compliance (2018/19)
Taupo District Council	Motutere	SAF	Carbon beds	Land	Forest irrigation site	31/01/2016	Lodged	CURRENT CONSENT: The Council may review the consent every 5 years from the date of commencement (7/10/1996)		N/A	N/A	Full compliance (2018/19)
Taupo District Council	Omori	Oxidation ponds		Land	Spray irrigation to land	31/03/2044	Lodged	New consent granted 2019	Not Assessed	N/A	N/A	High level of compliance (2016/17)
Taupo District Council	Motuopa	SBR	Second SBR Tank; Inlet balance tank	Land	Effluent soakage fields	13/11/2033	Current	September of 2018, 2023, and 2028	Not Assessed	N/A	N/A	Partial compliance (2016/17)
Taupo District Council	Turangi	Activated sludge; MBR		River	Discharges to Hangarito Stream via a gabion-basket rock filter	23/06/2018	Lodged	The Waikato Regional Council may in the month following each two yearly anniversary of the commencement of this consent, serve notice on the consent holder (Commenced on 23/06/2003)	No	CURRENT CONSENT: The consent holder shall ensure that after reasonable mixing the discharge does not cause any of the following effects in any receiving water body or wetland: (a) The production of any conspicuous oil or grease film, scum, foam, or floatable or suspended materials; (b) Any conspicuous change in the colour or visual clarity; (c) Any emission of objectionable odour; (d) The rendering of fresh water unsuitable for contact recreation either in the South Taupo Wetland or the Tokaanu Tallrace; and (e) Any significant adverse effects on aquatic life or fauna or flora.	Length not specified	High level of compliance (2017/18)