20/RC/106

To the Hearing Panel: 9 November 2020

Staff Report for Hearing

The recommendation in the staff report represents the opinion of the writer and it is not binding on the Hearing Panel. The report is evidence and has no greater weight than any other evidence that the Panel will hear and consider.

Hearing of Application – APP-20191339

Alliance Group Limited - Mataura

Compiled by Ian Mayhew, Principal Planning and Policy Consultant at 4Sight Consulting

Applicant:	Alliance Group Limited - Mataura
Application Number:	APP-20191339
Location:	Alliance Group Limited Mataura Meat Processing Plant 18-30 McQueen Avenue, Mataura
Activities for Consent:	See Table 1 (below). A consent term of 35 years is sought for all consents
Notification:	The application was publicly notified on 24 October 2019

Table 1: Consents Sought

Consent Type	Purpose
Water Permit	To take and use 21,200 m^3 per day of surface water from a hydro race fed by the Mataura River for condenser cooling water purposes
Discharge Permit	To discharge 21,200 m^3 per day of condenser cooling water from the meat works to the Mataura River
Water Permit	To take and use 8,000 m^3 per day of surface water from a hydro race fed by the Mataura River for meat processing and truck washing purposes
Discharge Permit	To discharge 8,000 m^3 per day of treated meat works wastewater to the Mataura River
Land Use Consent	To use land for an existing weir and hydro race structure in the Mataura River.
Water Permit	To dam and divert water using an existing weir and hydro race structure

1 Introduction

1.1 Status and purpose of this report

This report has been prepared under section 42A of the Resource Management Act 1991 (RMA or Act) to assist the Hearing Panel in the hearing of the application for resource consent made by Alliance Group Limited (Alliance or the Applicant) for its Meat Processing Plant in Mataura (the Plant). Section 42A allows local authorities to require the preparation of such a report on an application for resource consent and allows the consent authority to consider the report at any hearing.

In accordance with s42A (1A) and (1B), material contained within the application documentation is largely referenced rather than repeated where it is efficient to do so.

1.2 About the author

My name is Ian Mayhew. I am a Principal Planning and Policy Consultant employed by 4Sight Consulting Limited (4Sight). I have more than 30 years' experience in resource management, including as Manager Land and Water Quality at the Auckland Regional Council, and for the last 19 years as a consultant specialising in natural resource management – primarily freshwater management and the impacts of urban development including stormwater and wastewater discharges. My main areas of practice are national and regional policy and plan development and consent acquisition for major infrastructure/development.

I hold the qualifications of an MSc in Geology (geohydrology) and a post-graduate diploma in Geothermal Energy Technology. I am a full member of the New Zealand Planning Institute and an Accredited Hearing Commissioner.

I was engaged by Environment Southland in September 2020 to prepare this report. Processing of the applications, including a request for further information and the commissioning of independent technical reviews of the applications, was previously undertaken in-house by Environment Southland. I was commissioned to complete the preparation of the s42A assessment report as the officer initially assessing the applications left Council to take up a role in another organisation.

I undertook a site visit to the Plant and surrounding area on 28 October 2020.

I advise that 4Sight has also undertaken several of the independent technical reviews. These were completed prior to my involvement with the project. I have provided input into the Public Health Review that is appended to this report and directed some questions for consideration in the expert evidence on water quality, ecology and wastewater treatment to assist in my understanding of adverse effects, potential conditions and related matters.

While this is a Council hearing, I confirm I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Consolidated Practice Note 2014 and agree to comply with it in the preparation of this report. In that regard I confirm that this report is written within my area of expertise, except where otherwise stated, and that I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

1.3 Information relied on in preparation of this report

In preparation of this report I have primarily had regard to the following documents:

- The resource consent applications:
  - Mataura Processing Plant: Resource Consent Applications and Assessment of Environmental Effects, 31 May 2019 (Take and Discharge Application)
  - Use of Mataura River Weir to Dam and Divert Water: Resource Consent Applications and Assessment of Environmental Effects, 5 July 2019 (Weir Application)
- Further information provided by the Applicant under section 92(1) of the RMA
  - Further Information Request – Part 1: 9 August 2019
  - Further Information Request – Part 2: 9 October 2019 (including an initial Cultural Impact Assessment prepared by Te Ao Marama Inc and a subsequent one prepared by Aukaha on behalf of Hokonui Rūnanga)
- Additional information provided by the Applicant following the prehearing meeting
  - Weir and Fish Passage information, 14 October 2020
  - Alliance Environmental Management System Manual, 11 May 2020
  - Environmental Management Plan, Alliance Mataura July 2020
  - Parameter worst case dilution
- The submissions on the application
- Technical reviews of the application completed under section 92(2) of the RMA
  - Water Quality and Ecology, 4Sight Consulting, May 2020
  - Wastewater Assessment, 4Sight Consulting, June 2020
  - State of the Environment Analysis, 4Sight Consulting, 14 October 2019
  - Public Health, Dr Marion Poore, 1 November 2020
- Technical evidence provided by:
  - Dr Peter Wilson, Keren Bennett, Alice Andrew – 4Sight Consulting
  - Dr Marion Poore
- Relevant Statutory Instruments including
  - Resource Management Act 1991 (RMA or Act))
  - Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F)
  - Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NES-SHDW)
  - Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 (Water Take Regulations)
  - Water Conservation (Mataura River) Order 1997 (Mataura WCO)
  - National Policy Statement on Freshwater Management 2020 (NPS FM)
  - Southland Regional Policy Statement 2017 (RPS)
  - Regional Water Plan for Southland, 2010 (RWPS)

- Proposed Southland Water and Land Plan, 4 April 2018 (Decisions Version – with Appeals) (PSWLP)
- Environment Court Interim Decisions on the Proposed Southland Water and Land Plan
- Te Tangi a Tauria (Iwi Management Plan) 2008

In addition to the above, Environment Southland has sought several pieces of legal advice on aspects of the statutory assessment of the proposal, including the interpretation of the NPS FM. The advice was provided by Mike Doesburg of Wynn Williams. I quote this advice as relevant in my assessment and have attached the advice in full for the Panel's information.

1.4 Attachments

The following Attachments form part of this report:

Attachment 1: Applications: Take and Discharge + Weir and Damming/Diversion.

Attachment 2: Responses to requests for further information.

Attachment 3: Submissions that were received.

Attachment 4: The Pre-hearing report.

Attachment 5: Additional information from the Applicant following the pre-hearing meeting.

Attachment 6: Additional Information from the Applicant on Alternatives (29/10/2020).

Attachment 7: Independent technical review reports:

7A: Technical Review – Mataura Processing Plant Resource Consent Applications - Water Quality and Ecology, 4Sight Consulting, May 2020 (4Sight Water Quality and Ecology Review);

7B: Technical Review – Mataura Processing Plant Resource Consent Applications - Wastewater Assessment, 4Sight Consulting, June 2020 (4Sight Wastewater Review);

7C: State of the Environment Analysis, 4Sight Consulting, 14 October 2019 (4Sight SoE Review);

7D: Public Health review of the Alliance Meatworks Ltd Assessment of Environmental Effects at Mataura, Dr Marion Poore, 1 November 2020 (Public Health Review).

Attachment 8: Technical Evidence:

8A: Evidence of Dr Peter Wilson;

8B: Evidence of Ms Keren Bennett;

8C: Evidence of Ms Alice Andrew;

8D: Evidence of Dr Marion Poore.

Attachment 9: Draft conditions of consent.

Attachment 10: Site photographs.

Attachment 11: Legal Opinions provided by Wynn Williams to Environment Southland on the Mataura WCO and the NPS FM.

2 Application and Procedural Matters

2.1 The proposed activities

Consents have been sought as follows.

Applicant:	Alliance Group Limited - Mataura
Application Number:	APP-20191339
Activities for consent is sought:	**Take and Discharge Applications:**
	To take and use 8,000 m^3 per day of surface water from a hydro race fed by the Mataura River for meat processing and truck washing purposes.
	To take and use 21,200 m^3 per day of surface water from a hydro race fed by the Mataura River for condenser cooling water purposes.
	To discharge 21,200 m^3 per day of condenser cooling water from the meat works to the Mataura River.
	To discharge 8,000 m^3 per day of treated meat works wastewater to the Mataura River.
	Weir Applications:
	To use land for an existing weir and hydro race structure in the Mataura River.
	To dam and divert water using an existing weir and hydro race structure.
Site address or location:	18-30 McQueen Avenue, True Right Bank, Mataura Falls/Te Au-Nui-Pihapiha-Kanakana (Mataura Falls), Mataura River, Mataura.
Legal description:	Lot 1 DP 12500 and Lots 1 and 2 DP 12431.
Map Reference:	At or about NZTM: Easting 1281400, Northing 4876600.

2.2 Summary of the Proposal

The proposed activities are outlined in the submitted applications. However, by way of brief summary, Alliance owns and operates the Plant, which is located in the Mataura township on the true right (west) bank of the Mataura River. Figure 1 is an aerial photograph of the site that shows the key features as discussed in this report.

The Mataura River in the vicinity of the Plant, the Plant (including take and discharge points) and weir are shown in the site photos in Attachment 10. Note that the photographs are taken at a relatively high flow rate (estimated at 120 m^3/s) following a period of rain, hence the discolouration of the water both upstream and downstream of the Plant.

2.2.1 The Applicant

Alliance is a farmer owned cooperative and the application describes the Plant, which processes stock from around the region, as a vital component of Southland's agricultural sector and the local and regional economy. In this regard, the Applicant advises that the Plant employs approximately 500 people during the peak of the season and contributes approximately $160 million per year to the economy (mostly in livestock payments) and approximately $22 million per year for wages and salaries (2017/2018 season).

2.2.2 The Plant and Consents Sought

Take and Discharge Applications

The Plant is an existing activity and currently operates under 10 resource consents issued by Environment Southland. Three of these consents expired on 6 December 2019[1]. They authorised:

- The take and use of up to 35,600 m^3 per day from a water race fed by the Mataura River water for cooling and meat processing purposes (AUTH-204126-V1);
- The discharge of up to 21,200 m^3 per day of cooling water from the Mataura meat processing plant into a water race which discharges to the Mataura River (AUTH-204125); and
- The discharge of up to 14,400 m^3 per day of treated meat works wastewater to the Mataura River at Mataura (AUTH-202327).

In respect of the take and discharge applications (see table above), replacement consents have been lodged for lesser volumes than the previous consents, and with separate applications for the take and discharge of cooling water and water/wastewater associated with meat processing and other activities.

A term of 35 years has been sought.

Weir Applications

Consent is also sought for the use of an existing concrete U-shaped weir immediately upstream of the Plant and the associated damming and diversion of water (see table above). In respect of these applications, Alliance currently holds resource consent to:

- Dam, divert, use and discharge water for hydro-electric power generation for the weir structure.

These consents expire on 7 November 2026. The Applicant advises that the new applications to use the weir and for the associated damming and diversion of water have been lodged to provide certainty that the weir will be able to be used for the same term as sought for the take and discharge consents (35 years).

[1] The replacement applications were lodged on 31 May 2019, more than six months prior to the expiry of the consents. Hence the ability to continue to operate under these consents is preserved in accordance with RMA s 124.

Figure 1: Aerial photograph of the Plant and key features

2.2.3 **Proposed Plant Upgrades**

While the proposed upgrades are described in the application, I consider that they are fundamental to the consideration of the adverse effects of the proposal and hence I summarise these below.

Year 1 – 3: Implementing water reduction opportunities and addressing existing resilience issues.

Pattle Delamore Partners (PDP), on behalf of the Applicant[2], has identified potential intermittent cross contamination points between the waste streams and potential failure points within the reticulation system. To address these resilience issues, the following is proposed to be completed in the first year of the new consent term:

- Re-route all pipework that runs above or in the water race to a location that prevents the risk of waste leaking into the water race or fresh water leaking into the treatment system;
- Re-route all pipework that runs above the river to a location that prevents the risk of waste leaking into the river;
- Modify the beef sump milli-screen overflow to prevent the risk of green waste overflows into the non-green waste stream; and
- Modify the stockyard and tripe recycle area to prevent the risk of green waste overflows into the non-green waste stream.

Year 2: Intake Screens

Some of the water intakes are located within the hydro-race and are currently screened with an aperture size of 5 mm – 6 mm. The remaining intakes are located within a channel between the hydro-race and the plant and are screened with a passive screen with a 1.5 mm bar spacing.

The Applicant is proposing to replace the 5–6 mm screens with 2–3 mm screens to further reduce the risk of entrainment of small fish within two years of the commencement of the new consent.

Year 5: Tertiary Disinfection of Microbial Contaminants.

Within five years of the commencement of the new consent, Alliance proposes that any wastewater discharged to the Mataura River is treated via a UV plant (or equivalent disinfection unit), in order to inactivate pathogens. This upgrade is expected to incur capital costs of approximately $4.14 million, and additional annual operational expenditure of $230,000.

Following installation of the treatment system the proposed conditions require the *E.coli* concentration in the discharged wastewater to not exceed an annual median of 1,000 CFU/100ml and 95th percentile of <10,000 CFU/100mL.

Year 15: Biological Treatment System

Within 15 years of the commencement of the consent, the Applicant proposes to install a full biological treatment system to treat the Plant's wastewater prior to discharge. This system will reduce BOD,

[2] Appendix 8 of the application

ammoniacal nitrogen and total nitrogen loads and assist in reducing microbial concentrations. Detailed design of the biological treatment system has yet to be completed. However, the Applicant currently anticipates a large, lagoon based, biological reactor will be installed. Due to the large lagoon size (approximately 8,500 m^3), it will likely be located 2 km away on land currently owned by Alliance, with wastewater being pumped to the lagoon for treatment, and then back to the Plant for discharge via the existing outfall.

The Applicant estimates that the additional capital cost of installing tertiary disinfection of microbial contaminants and a biological treatment system is $13.98 million with annual operating costs of $1.06 million. Following installation of the biological treatment system, the discharge concentrations of each parameter are expected to significantly reduce.

In summary, the Applicant proposes to implement a progressive programme of Plant upgrades. This programme is proposed over a 15-year period from the commencement of the consent. However, the only significant improvements to the quality of the discharge are to be implemented by Year 5 (UV disinfection (or equivalent)) and by Year 15 (biological treatment).

2.3 Regional Planning framework

Resource consents for the above activities are required under both the Operative Regional Water Plan for Southland (RWPS or Operative Plan) and the Proposed Southland Water and Land Plan (PSWLP or Proposed Plan).

Table 5 of the Take and Discharge Application identifies the activity status of the take and discharge consents that have been sought, and the basis for this, and similarly Table 1 of the Weir Application identifies the activity status of the consents associated with the weir structure.

I generally concur with these assessments and summarise these as follows in Table 2 below. I note that all of the rules in the Proposed Plan (PP in the table below) are subject to appeal.

Table 2: Activity Status of Consents Sought

Activity	Relevant Rule	Activity Status
To discharge 21,200 m^3 per day of condenser cooling water from the meat works to the Mataura River	OP: Rule 1: Discharges to surface water bodies that meet water quality standards	Discretionary activity
	PP: Rule 5: Discharges to surface waterbodies	Discretionary activity
To discharge 8,000 m^3 per day of treated meat works wastewater including treated wastewater from hide and skin processing to the Mataura River	OP: Rule 2: Discharges to surface water bodies that do not meet water quality standards	Non-complying activity
	PP: Rule 6: Discharges to surface waterbodies that do not meet water quality standards	Non-complying activity
To take and use 8,000 m^3 per day of surface water from a hydro race fed by the Mataura River for meat processing and truck washing purposes	OP: Rule 18 d(i): Abstraction, diversion and use of surface water from any surface water body or any artificial watercourse draining into a surface water body where the total volume of water allocated at any time is less than 10 percent of the mean annual low flow at any downstream point in the catchment	Restricted discretionary activity
	PP: Rule 49(c): the taking, diversion and use of surface water where the total rate of authorised surface water abstraction does not exceed the primary allocation specified in Appendix K (of the PP)	Discretionary activity
To take and use 21,200 m^3 per day of surface water from a hydro race fed by the Mataura River for condenser cooling water purposes	OP: Rule 18 d(iii): Abstraction, diversion and use of surface water from any surface water body or artificial watercourse where the water abstracted or diverted is returned in the vicinity of the abstraction or diversion point	Restricted discretionary activity[3]

[3] Matters of discretion are: (i) the volume of water to be taken (including any water to be returned to the surface water body); (ii) any effects on river and stream flows (including effects on minimum flows, flow variability and duration), wetland and lake water levels, aquatic ecosystems, aquifer storage volumes, the availability and reliability of supply for existing users and water quality; (iii) the location of the abstraction or diversion; (iv) The efficiency of water use; (v) the need for the installation of a water meter; (vi) monitoring requirements; (vii) methods to prevent fish from entering the reticulation system; (viii) minimum flow and level requirements; (ix) consistency with any water conservation order; (x) the degree of hydraulic connection to groundwater.

	PP: Rule 49 (b)(iii): non-consumptive takes where the total volume of water taken or diverted is returned within 100 metres of the take or diversion point	Restricted discretionary activity[4]
To use of land for an existing weir and hydro race structure in the Mataura River.	OP: Rule 29 (e): The use of any dam or weir in, on, under or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in clause (d)	Discretionary activity
	PP: Rule 60 (ab): The use of any dam or weir where it is lawfully established, subject to meeting permitted activity standards[5]	Permitted activity
To dam and divert water using an existing weir and hydro race structure	OP: Rule 19 (b): Damming of water that is not a permitted activity OP: Rule 18(d)(iii): diversion of surface water that is ***not*** returned in the vicinity of the abstraction or diversion point	Discretionary activity Discretionary Activity (Innominate)[6]
	PP: Rule 4/60 (b): damming of water with an existing dam PP: Rule 49(c): Diversion of surface water where abstraction does not exceed the primary allocation in Appendix K (of the PP)	Discretionary activity Discretionary activity

[4] Matters of discretion are: 1. the volume, rate, frequency and timing of water to be taken (including any water to be returned to the lake, river, artificial watercourse, modified watercourse or natural wetland and the delay between the taking and returning of this water); 2. any effects on river flows (including effects on minimum flows, flow variability and duration of flows), wetland or lake water levels, aquatic ecosystems, aquifer storage volumes, the availability and reliability of supply for existing users, and water quality; 3. the location of the take or diversion; 4. the efficiency of water use, in accordance with Appendix O; 5. the installation and use of a water meter; 6. information and monitoring requirements; 7. methods to prevent fish from entering the intake in accordance with Appendix R; 8. take cessation in response to minimum flow and level requirements; 9. consistency with any water conservation order; 10. the degree of hydraulic connection to groundwater; 11. any effect on a natural wetland; 12. the proposed method of take and delivery of the water; and 13. any water storage available for the water taken and its volume.

[5] I am not able to confirm that the weir, which I understand was constructed in the 1920s/1930s, was lawfully established. However, it is an existing weir that is expressly recognised and provided for in the Water Conservation Order for the Mataura River. I consider it reasonable to conclude that it is lawfully established and that the necessary permitted activity standards relating to erosion and maintenance can, and will continue to be, met.

[6] My interpretation of the relevant rule is different to that of the Applicant. I consider that the water diverted by the weir is not returned to the Mataura River in the same vicinity as the diversion. As shown in Figure 1, it is returned some 300 metres away. Non-compliance with Rule 18(d)(iii) of the OD does not appear to be provided for in the plan, hence the application is for a discretionary activity. Note that this has no bearing on the overall application status.

As the applications are bundled, the overall activity status is a **non-complying activity**.

When considering a **non-complying activity**, the Council may only, in accordance with section 104D of the Act, grant a resource consent for the activity if it is satisfied that the adverse effects of the activity are minor or the application is for an activity that will not be contrary to the objectives and policies of the relevant plan or proposed plan. If the application passes the "gateway" tests in section 104D, under section 104B the Council may grant or refuse consent for a non-complying activity, and if it grants the application, may impose conditions under section 108 of the RMA.

2.4 Request for additional consents (s91)

A request for additional consents, under section 91 of the Act, was made on 25 June 2019. This request related to the use of the Mataura weir and the associated damming and diversion of water and resulted in the additional application for resource consents for a 35 year term.

I note, for completeness, that the additional consents sought under section 91, formed part of the application that was publicly notified.

2.5 Further information request (s92)

Prior to notification of the Application, further information was requested from the Applicant on 5 July 2019. The requested information included:

1. Clarification of discharge volumes;
2. An explanation of how the water intake pumps operate, such as, how they are activated and when they are activated;
3. Confirmation of whether or not there is water storage on-site, and if so, how much;
4. A description of how the proposed volume of water to be abstracted is calculated and evidence that this is a reasonable and efficient use of the water resource;
5. A cultural impact assessment (CIA) which relates to all the proposed activities including the damming and diversion of water; and
6. An assessment of the proposed activities against Policy 14 of the proposed Southland Water and Land Plan, with specific regard to showing how the adverse effects associated with a discharge to land are greater than a discharge to water.

A partial response to the further information request, specifically Items 1 to 4, was provided on 9 August 2019. The response to Items 5 and 6, which included an initial CIA prepared by Te Ao Marama Inc and subsequent assessments (on the take/discharge and weir) prepared by Aukaha on behalf of Hokonui Rūnanga, was received on 30 September 2019.

The two section 92 responses are attached as Attachment 2.

2.6 Notification and Submissions

The application was publicly notified on 24 October 2019 in accordance with section 95A (3)(a) of the RMA – at the Applicant's request. Submissions closed on 22 November 2019.

2.6.1 Submissions Received

A total of 211[7] submissions and one late submission (Department of Conservation - received on 29 November 2019) were received. Of these, 208 submissions support the applications while four submissions oppose the applications.

In respect of the late submission, the Department of Conservation advised that there were internal circumstances which led to a delay in lodging its submission, which was received one week late. I recommend that the timeframe for the service of the submission be waived in accordance with section 37 and s37A of the Act, and the submission accepted, as in my opinion, granting the waiver:

- is unlikely to materially affect the interests of any person, including the Applicant;
- is in the interests of the community in achieving adequate assessment of the effects of the proposal;
- does not result in unreasonable delay, particularly given the timeframe between receipt of the submission and the hearing.

The submissions are tabulated and included in full in Attachment 3 and are summarised in Table 2 below. As the Panel will see from Attachment 3, the majority (202) of the submissions are identical. Accordingly, these have been summarised only once in Table 2.

Table 2: Summary of Submissions

Submitter	Oppose/ Support	Reasons	Decision Sought
Adam Smith **+ 201 others**	Support	Alliance is a significant part of Southland's agricultural sector, a vital component of the local and regional economy and a significant employer. Alliance is proposing to make significant investment in upgrading its treatment process. This demonstrates Alliance's commitment to improving freshwater quality and remaining a major contributor to the Eastern Southland community.	Grant the renewal of the consents for a term of 35 years to ensure future security and stability for the Alliance Mataura Plant, Alliance Group farmer shareholders, employees, contractors, suppliers and the

[7] More than one submission was received from some parties. Where the multiple submissions are identical, they have been considered as one submission. Where the submissions contain different content, they have been recorded as different submissions.

Submitter	Oppose/ Support	Reasons	Decision Sought
			wider Southland community.
Bruce McDonough	Support	Alliance are a good corporate neighbour, provide a lot of employment and are working to best industry and good environmental practice. Has not seen any adverse effects of having the industry in the neighbourhood.	Allow Alliance to continue its operation unhindered.
Department of Conservation	Oppose	The application fails to ensure that adverse effects are avoided, remedied or mitigated. It is inconsistent with and contrary to Part 2 of the RMA (sections 6 and 7) and contrary to the objectives and policies of the NPSFM 2017,and Southland's planning documents. Discharge affects the Mataura River Mātaitai Reserve, which is an area of high cultural significance and which has a large population of tuna and kanakana, which are harvested using traditional methods and tikanga. Ngai Tahu's relationship with the Mataura River and statutory acknowledgement needs to be respected. Weir and water race are existing barriers and a complex environment for fish to navigate. Fish ladder and eel 'trap and transfer' in existing consent should be reflected in any consent. Support upgrading fish screens in the intakes. Water quality most affected by Total Nitrogen, Ammonical Nitrogen and *e.coli*. The discharge contributes 1-2% of nitrogen load to Toetoes / Fortrose Estuary – which is a declining state. Mataura River is below national bottom line for dissolved inorganic nitrogen. Ammonical Nitrogen below plant is greater than above the plant, resulting in a lower level of protection and knowledge of toxicity of indigenous threatened species is incomplete. Could be increased risk to kanakana at the falls. Precautionary approach should be taken. River is clearly degraded for *e.coli* – a compulsory value under the NPSFM. Elevated contaminant levels having clear evidence of degradation within the Awarua Wetland RAMSAR site. Proposed upgrades are supported but timeframe is too long and will contribute to further degradation. A 35 year consent is too long, 15-20 years more appropriate.	That the consent be declined.
Federated Farmers of New Zealand	Support	Recognise the importance of the Mataura Plant in terms of social and economic contribution to the community.	Approve the resource consents for a term of 35 years.

Submitter	Oppose/ Support	Reasons	Decision Sought
		High reliance on primary production for Southland's economy, with flow on benefit and value to other sectors including business, financial and retail. Alliance is a significant part of Southland's agricultural sector, a vital component of the local and regional economy and a significant employer. Alliance is proposing to make significant investment in upgrading its treatment process. This demonstrates Alliance's commitment to improving freshwater quality and remaining a major contributor to the Eastern Southland community.	
Fish & Game New Zealand - Southland Region	Oppose	Site is within the Mataura FMU, Mataura River including tidal reaches and estuary has significant sportfish, gamebird and recreational values and is a nationally recognised fishery recognised by the Mataura Water Conservation Order1997. The lower river is an important habitat for brown trout and chinook salmon moving between the freshwater, estuarine and sea environment. Great diversity of wildlife is associated with the lower Mataura - birds and important spawning grounds and habitat for fish species. Mataura River is culturally significant and subject to a statutory acknowledgement and a mātaitai reserve exists in vicinity of the site. Awarua Plain – Southland estuaries including Fortrose Harbour and Toestoes Estuary are recognised as a significant wetland and part of the Awarua Plain RAMSAR site. Council must test activities against RMA and Plan provisions. Acknowledges socio-economic and rural benefits are significant but does not negate requirement to safeguard life supporting capacity and avoid remedy or mitigate effects in the environment. Applicant's existing consents do not form part of the existing environment and it should not be assumed that they will be renewed. Mataura River and Toetoes estuary degraded and continue to decline due to high nutrient loads. Submitter has a range of concerns about the treated wastewater discharge and while reductions in wastewater contaminants proposed in the application are supported, timeframes are too long and not clear what improvement will occur in advance of this timeframe. Timing appears driven by financial considerations not ecological/water quality.	The application be declined unless: - Consents are only granted for 20 years; - The biological treatment upgrade is completed within 10 years; - Conditions require receiving the environment standards of Appendix G of operative plan and NPS FM, limits for e.coli, nutrients and ammonia; a low flow contingency plan - Take and use subject to conditions requiring monitoring and reporting and implementation of fish screening within one year.

Submitter	Oppose/ Support	Reasons	Decision Sought
		Does not appear to be any reduction in Phosphorus proposed. Question whether this is appropriate given decline in Toetoes Estuary. Other contaminants (amm N, DO etc) needs to be considered in light of national bottom lines etc. Standards for BOD and visual clarity should be included. Submitter supports disinfection, but would like to see in-river limit. Benthic monitoring should be undertaken during worst case conditions and a contingency for wastewater discharge in a low flow regime/breakdown. Unclear why 2 years is required for proposed intake screen upgrades. Conditions for fish ladder on weir need to be transferred across. Low flow contingency plan inadequate. No clear reason for different monitoring and reporting of water takes for cooling/process water. 35 year duration too long and there are no proposed reductions in loads beyond the 15 year mark. 20 years is more appropriate. Tangi a Tauira Management Plan provides clear direction that wastewater discharge should not exceed 25 years. Need to recognise wider FMU planning process – a long consent may undermine that process. Bring the biological wastewater upgrade forward to be completed within 10 years supported by monitoring to determine if the upgrade results in environmental benefit. Include review processes to enable response to national and FMU freshwater planning processes and chronological reviews. Application is contrary to the provisions of the RMA, NPS FM, NZCPS, and Operative and Proposed Southland Plans.	
Hokonui Rūnanga - Aukaha	Oppose	Submitter has responsibilities as mana whenua to look after river, many generations have suffered undesirable impacts of industrialisation. Applications provide opportunity to address these impacts. Hokonui want to see decisions and investments that meet Ngāi Tahu standards of cultural health and provide for rights, values and interests. Ceasing culturally offensive discharge and removing barriers to fish passage would have a profound effect. Cultural impact assessment highlights a range of impacts which have not been adequately addressed in consent application and proposed conditions, and seeks that if consents are granted then a series of conditions be imposed as a minimum requirement to address concerns including:	Decline the consent. If granted then subject to a short term and other conditions detailed in the submission.

Submitter	Oppose/ Support	Reasons	Decision Sought
		▪ a five year term for wastewater discharge and similar for weir and hydro race; ▪ cultural health monitoring; ▪ implementing a culturally informed trap and transfer programme and appropriate fish screening; ▪ Adherence to the flow and allocation regime. A short term consent with an agreed programme of work will ensure that effort will be made to cease discharges to the river and finding alternative to the weir structure.	
Luke Bartlett	Support	As for Adam Smith and others above. Plus: Local Four Square store is reliant on the economic and employment benefits from the Plant	As for Adam Smith and others above.
Robin McGowan	Support	As for Adam Smith and others above. Plus: The application is consistent with sustainable use of resources under the RMA and consistent with the government's proposals to improve water quality. Retention of jobs is vital for the region – the plant is a corner stone employer and contributes to the wider community. The waters below the plant continue to provide some of the best brown trout fishing in the world and young people continue to jump into the river with no ill effects. There are significant high flows that flush and refresh the river regularly. There has been a reduction in chemicals discharges to the river over time, and the plant has constantly improved the treatment of its discharge.	As for Adam Smith and others above. 35 year timeframe is consistent with government policy and provides confidence to Alliance to commit investment to further improve the discharge.
Sherilyn Thomson	Support	Support the application as for Adam Smith and others above with the exception of taking water from truck washing purposes and damming and diverting water using the existing weir and hydro race. No reasons for these exclusions were given.	As for Adam Smith and others above with the exception of the resource consent to dam and divert water.
Te Rūnanga O Ngāi Tahu	Oppose	The significance of the Mataura River to Ngāi Tahu is recognised in statutory acknowledgement 42 and Mataura Te Awa Mātaitai. Te Rūnanga has kaitiaktianga and whanaungatanga responsibilities in ensuring sustainable management of natural resources. The importance of the Mataura for mahinga kai has been recognised through the establishment of Mataura Te Awa	Not stated. Opposes the application in its current form.

Submitter	Oppose/ Support	Reasons	Decision Sought
		Mātaitai – Te Au-Nui-Pihapiha-Kanakana (Mataura Falls) is located in the middle of this Mātaitai reserve. Te Rūnanga has reviewed the submission of Hokonui Rūnaka, supports it in its entirety and wishes to adopt it as its own	

In summary, there is significant support for the renewal of the necessary resource consents to enable the continued operation of the Plant to provide on-going services to Southland's agricultural sector and contribute to local and regional economy, and associated employment, and contribution to the wider community.

Submissions in opposition raise issues that include:

- Effects on water quality and ecology, including kanakana and tuna;
- The significant values of the Mataura River and downstream estuary, including sportfishing and other recreational activities;
- The cumulative nutrient impacts on the river and downstream Toetoes Estuary;
- Inadequate consideration of alternatives, in particular a land-based disposal option;
- The length of the consent term that is sought, which submitters consider is too long;
- The timing of the proposed improvements, which submitters generally consider should be brought forward;
- Discharge standards and monitoring, including cultural monitoring;
- Reviews of the consent conditions, including to reflect the future FMU planning process;
- The cultural significance of the Mataura River, including for mahinga kai – which is reflected in the Mātaitai Reserve on the river;
- The cultural offense caused by past modification, including the weir, and on-going discharges of wastewater; and
- The passage of fish across the weir structure.

2.6.2 Parties wishing to be heard at the hearing

The following parties indicated that they wish to be heard at the hearing:

- Department of Conservation;
- Federated Farmers, Dunedin Branch;
- Fish & Game New Zealand - Southland Region;
- Hokonui Runānga;
- Jo-Ann Barclay;
- John Norman;
- John Peek;

- New Zealand Meat Workers Union - Mataura Sub Branch;
- Robin McGowan; and
- Te Rūnanga O Ngāi Tahu.

2.7 Section 99 pre-hearing meeting

A pre-hearing meeting for the application was held on 30 September 2020, and was chaired by Councillor Eric Roy, (Environment Southland). His report, as per section 99(5) of the Act, is provided as Attachment 4.

The Applicant and submitters that had indicated that wished to be heard at the hearing were invited to attend the pre-hearing meeting and contribute to the meeting agenda. The following key issues were identified for discussion:

1. Consideration of alternatives / best practicable option;
2. Discharge volume;
3. Discharge quality and associated standards (pre and post upgrades);
    a. Appropriateness of proposed 12-month rolling medians and 95th percentile units
    b. Monitoring requirements
4. Upgrade timeframes;
    a. E coli, nutrients
5. Consent term;
6. Review conditions;
7. Consideration of "existing environment" (this matter was not discussed);
8. Fish passage (NPSFM (2020)); and
9. Implications of NPS FM (2020) (e.g. Te Mana o te Wai, Objective 2.1) (this matter was not discussed).

As a result of the meeting, the Applicant indicated it would provide further information to support its application, namely:

- further details on how the in-stream dilutions (concentrations) were calculated by the use of the 12 month rolling median and 95th percentiles had been determined;
- provide details of the current monitoring regime undertaken for the Alliance Mataura plant.
- further information on fish passage; and
- continue to work with Hokonui Rūnanga.

The additional information provided by the Applicant was received on 14 October 2020 and is provided in Attachment 5.

2.8 Additional Information 29 October 2020 following the Pre-Hearing Meeting

The Applicant prepared and provided additional information on 29 October 2020, in respect of wastewater treatment options (Attachment 6). This comprised a technical memorandum[8] and a report[9]. The latter was primarily focussed on comments in the 4Sight Wastewater Review in respect of alternative disposal options, in particular a discharge to land.

This further information identified the key constraints that contribute to the discounting of the establishment of a reliable comprehensive land treatment system including:

- The soils that would allow sustainable wastewater irrigation are unsuitable in the vicinity of the processing plant.
- There is a risk of significant direct run-off and potential high nitrogen leaching if the identified land is utilised on an ongoing basis.
- Winter irrigation is not practicable and use of large winter storage facilities increases a level of risk in relation to management of nutrient levels in the stored treated wastewater, odour and would incur considerable additional capital cost to the management option identified in the application as comprising the best practicable option.
- Dual discharge options present considerable difficulties due to the fact that the Mataura Plant processes during winter and winter processing rates are high. Wastewater management would necessitate prior treatment and the obtaining of suitable irrigable land which adds a significant capital cost to the management option identified in the application as comprising the best practicable option.

These conclusions are addressed in the evidence of Alice Andrew appended to this report as Attachment 8C.

3 Assessment

3.1 Statutory Considerations

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. Section 104(1) to (2A) state:

(1) When considering an application for a resource consent and any submission received, the consent authority must, subject to Part 2, have regard to:

(a) any actual and potential effects on the environment of allowing the activity;

[8] Alliance Mataura Plant Wastewater Treatment and Disposal Alternatives Assessment, PDP, 28 October 2020

[9] Alliance Mataura Plant Wastewater Treatment and Disposal Alternatives Assessment – Re-assessment of Land Discharge Options, PDP, October 2020

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and

(b) any relevant provisions of:

(i) a national environmental standard:

(ii) other regulations:

(iii) a national policy statement:

(v) a regional or proposed regional policy statement:

(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

(2) When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect.

(2A) When considering an application affected by section 124 or 165ZH(1)(c), the consent authority must have regard to the value of the investment of the existing consent holder.

As the (bundled) applications are a non-complying activity, section 104(D) of the Act is relevant and imposes restrictions on approval of the applications.

Section 105 and s107 of the Act are also relevant as the activities include a discharge of contaminants.

Sections 108 and 220 of the Act provide for consent to be granted subject to conditions and sets out the kind of conditions that may be imposed.

As the Mataura River is subject to the Water Conservation (Mataura River) Order 1997, section 217 of the Act is relevant to the consideration of applications that may affect the river and the values provided for by this Order. This section restricts the granting of consent in certain circumstances:

217 Effect of water conservation order

(1) No water conservation order shall affect or restrict any resource consent granted or any lawful use established in respect of the water body before the order is made.

(2) Where a water conservation order is operative, the relevant consent authority—

(a) shall not grant a water permit, coastal permit, or discharge permit if the grant of that permit would be contrary to any restriction or prohibition or any other provision of the order:

(b) shall not grant a water permit, a coastal permit, or a discharge permit to discharge water or contaminants into water, unless the grant of any such permit or the combined effect of the grant of any such permit and of existing water permits and discharge permits and existing lawful discharges into the water or taking, use, damming, or diversion of the water is such that the provisions of the water conservation order can remain without change or variation:

(c) shall, in granting any water permit, coastal permit, or discharge permit to discharge water or contaminants into water, impose such conditions as are necessary to ensure that the provisions of the water conservation order are maintained.

3.2 Description of the affected environment

The receiving environment for the activities is described in Section 3 of the Take and Discharge application. I agree with this description and accordingly, only a brief overview is provided here.

The Alliance Mataura Plant is in the Mataura township on the true right bank of the Mataura River. The first meat processing plant was established on this site in 1893, and has been an important component of Southland's agricultural sector, processing stock from the region. The true left bank of the river is occupied by the former Carter Holt Harvey paper mill, now an industrial site managed by the Mataura Industrial Estate (MIE). The latter includes a hydro-generation plant, that utilises water diverted by the Mataura River weir for electricity generation.

3.2.1 Mataura River

The activities for which consent is sought occur in the Mataura River, the catchment of which is the largest river catchment in the Southland Region, with a catchment area of 5,400 km^2 and stretches from its steep alpine headwaters in the north near Lake Wakatipu, to the south coast of Southland at Toetoes Estuary, approximately 35 km east of Bluff.

Over 70% of the Mataura catchment has been developed for farming which has significantly altered the catchment hydrology and water quality. The Plant is in the lower section of the Mataura Catchment, approximately 12 km downstream of Gore, and 44 km upstream of the Toetoes Estuary (at Fortrose). The application, at Section 3, indicates that this lowland section is the most heavily modified section of the river and water quality is influenced by the cumulative effects of land use and diffuse and multiple point source discharges.

A u-shaped weir, that is believed to have been constructed in the 1920s or 1930s, diverts flow to either side of the river to the hydro races operated by the Applicant and the MIE. Water also passes over the weir and immediately downstream of the weir are the Mataura Falls, a natural rock ledge feature.

The Mataura River is regarded as one of New Zealand's premier lowland brown trout fisheries and is internationally recognised, which is reflected in the Water Conservation (Mataura River) Order 1997.

With respect to other recreational values, the Mataura River supports a very popular whitebait fishery in its lower reaches and is subject to relatively high use for swimming during the summer months, both up and downstream of Mataura. This includes a bathing site in the vicinity of the Mataura Bridge approximately 100m downstream of the most southern end of the Plant site.

Hydrology

The flow within the Mataura River, which is continuously monitored by Environment Southland at Tuturau approximately 6 km downstream of the Plant, is highly variable because of its alpine headwaters and considerable catchment size. Flow statistics are provided in the application[10] as follows:

- Minimum flow: 10.1 m^3/s;

[10] Page 10 of Take and Discharge Application

- 7 day mean annual low flow: 19.0 m^3/s;
- Median flow: 56.8 m^3/s;
- Mean flow: 74.2 m^3/s;
- Maximum flow: 1,820.9 m^3/s.

Water quality

The Mataura River is subject to a number of point source and diffuse contaminant discharges including:

- Gore township, which discharges stormwater and sewage to the river about 10 km upstream;
- The Applicant's discharge of treated meatworks wastewater (this application);
- Mataura township, which discharges stormwater from the town, and sewage about 4 km downstream;
- The Fonterra Edendale plant and Wyndale Sewage treatment plant which discharge approximately 15 km downstream of the Plant; and
- Diffuse runoff from the large, primarily high productivity agricultural Mataura River catchment.

State of the Environment (SoE) water quality in the Mataura River, both up and downstream of the site, has been assessed by both the Applicant and 4Sight Consulting (on behalf of the Council). The Applicant advises that water quality in the vicinity of Mataura is characterised by:

- Water temperatures (between 2.3–23.2°C) and DO levels (>6 g/m^3) suitable for protecting river ecosystem health;
- Variable visual clarity (0.07m – 3.29m);
- Nitrate and Ammonia concentrations which meet National Policy Statement for Freshwater Management 2014 (Freshwater NPS) Attribute State A or B for toxicity, but which exceed the relevant ANZECC (2000) 'physical and chemical stressor' trigger values which relate to nuisance plant growth;
- Nutrient indicators (e.g. Dissolved Inorganic Nitrogen (DIN) and Dissolved Reactive Phosphorus (DRP)) which regularly exceed the Ministry for the Environment periphyton guideline for protecting benthic biodiversity; and
- Very high E.coli concentrations which mean the Mataura River sits in the Red Freshwater NPS Attribute State for E.coli.

The 4Sight Water Quality and Ecology Review, appended as Attachment 7A, noted that the *E.coli* concentrations were elevated at all three sites that were assessed (Mataura River at Gore, the Waikaka Stream at Gore and the Mataura River at the Mataura River Bridge (approximately 300 metres downstream of the Plant) and exceeded the PSWLP limits[11] for popular bathing sites (130 CFU/100 mL) more than 80% of the time. The median *E. coli* concentration at the Mataura Bridge was about three times higher (statistically significant) than at the two upstream sites.

[11] Mataura 3 water class

4Sight also advises that the two Mataura River sites showed a trend of increasing nitrate concentrations at approximately 5% per year. However, for other parameters, changes were either not statistically significant or showed improvement.

Information from the LAWA (Land, Air, Water Aotearoa) website[12] indicates that at the monitoring site downstream of the Mataura Bridge, the water quality is in:

- the worst 25% of all lowland rural sites in New Zealand for E.coli, Clarity (black disc), Total Nitrogen, Total Oxidised Nitrogen, Ammoniacal Nitrogen;
- the worst 50% of all lowland rural sites for Total Phosphorous; and
- the best 50% of all lowland rural sites for Dissolved Reactive Phosphorus.

This indicates that the Mataura River is in a degraded state as a result of the cumulative effects of diffuse and point source contaminant discharges to the river.

Benthic Invertebrates

The Applicant's ecological monitoring data has recorded poor to fair macroinvertebrate community quality class across all monitoring sites both upstream and downstream of the Plant.

The benthic macroinvertebrate community in the Mataura River is typical of lowland gravel bed rivers, and supports a range of water quality sensitive and tolerant taxa. It is dominated by Ephemeroptera (mayflies) and Trichoptera (caddisflies) with Diptera (true flies) the next most common group. Deleatidium are the most common mayfly and the filter feeding Aoteapsyche is the most abundant caddisfly taxon recorded across all years.

Fish

The Applicant advises that the lower Mataura River supports moderate to high native fish diversity (13 native fish have been recorded) including eight species with an 'At Risk Declining' conservation status - longfin eels, torrentfish, lamprey, Gollum galaxias, galaxias southern, inanga, giant kokopu and koaro.

3.2.2 **Toetoes Estuary**

The Mataura River flows into the Toetoes Estuary. This estuary is a medium sized "tidal lagoon" type estuary that discharges to Toetoes Beach at Fortrose. It is part of the wider Awarua-Waituna Wetland complex, which is one of the largest remaining wetland complexes in New Zealand and a RAMSAR site, reflecting its status of a wetland of international significance.

The shallow Toetoes Estuary (mean depth of around 2 m) has a large freshwater influence because the estuary is small in relation to the freshwater input. It has a wide range of habitats (extensive mudflats and saltmarsh areas, very small patches of seagrass), but has historically lost large areas of saltmarsh (estimated loss of approximately 75% (250 ha)). Much of its surrounding wetland has also been lost through drainage and reclamation and conversion to pasture. reducing the estuary's ability to filter, dilute, and assimilate nutrient and sediment inputs.

[12] https://www.lawa.org.nz/explore-data/southland-region/river-quality/mataura-river/mataura-river-200m-ds-mataura-bridge/

Recent Environment Southland monitoring has shown the Toetoes Estuary is in a "moderate" but declining condition in relation to eutrophication, and that the ongoing drainage and loss of saltmarsh and densely vegetated terrestrial margins is placing the estuary under pressure. Excessive nutrient inputs are the primary driver of the eutrophication.

3.2.3 Cultural Context

The cultural impact assessments provided by the Applicant give a comprehensive assessment of the cultural values of, and association with, the Mataura River.

The Mataura River is a statutory acknowledgement area under the Ngāi Tahu Claims Settlement Act 1998. Only a handful of rivers were able to be acknowledged in this way through the Treaty Settlement process. Te Au-Nui-Pihapiha-Kanakana/Mataura Falls is specifically referenced in the description of the Mataura River Statutory Acknowledgement Area. Accordingly, the Crown has acknowledged Ngai Tahu's cultural, spiritual, historic, and traditional association to the Mataura River.

Schedule 42 of the Act notes that:

"The Mataura was an important mahinga kai, noted for its indigenous fishery. The Mataura Falls were particularly associated with the taking of kanakana (lamprey). The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Mataura, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The mauri of the Mataura represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the river."

There is a Mātaitai Reserve along the Mataura River, including the area of the Applicant's activities, under the Fisheries (Mataura River Mātaitai Reserve Bylaws) Notice 2009 (No. F485). Mātaitai Reserves are created for the purpose of recognising and providing for customary management practices and food gathering.

The Aukaha CIA that was submitted as part of the further information response indicates that this was the first freshwater mātaitai established in New Zealand, 2006, through the leadership of kaumātua Rewi Anglem, which is an indication of how greatly this area is valued within Hokonui Rūnanga and tribally. Addition, Aukaha advise that of all the rivers in the Ngāi Tahu takiwā, the Mataura River is one of those that was chosen for special recognition, and that within it the first freshwater mātaitai in the country was founded, provides important context for decision-making within the framework of the RMA.

3.2.4 Existing Environment

The Mataura River and catchment are subject to a range of permitted and consented takes and discharges that form part of the 'existing environment'. I have not undertaken an assessment of these, other than those water takes which occur below the Plant discharge. However, takes and discharges include:

- Gore township, which discharges stormwater and sewage to the river approximately 10 km upstream;

- Mataura township, which discharges stormwater from the town, and sewage about 4 km downstream;
- The Fonterra Edendale plant and Wyndale Sewage treatment plant which discharge approximately 15 km downstream of the Plant;
- Diffuse runoff from the large, primarily high productivity agricultural Mataura River catchment; and
- A variety of takes for public water supply, industrial use (including hydro-generation) and dairying/irrigation.

Of particular relevance to the weir applications, and my assessment below, are the Applicant's existing resource consents for the damming and diversion of water (by the weir) for hydro-generation. These also form part of the existing environment for the current term of those consents (November 2026).

3.3 Actual and potential effects

The activities for which consent has been sought have the potential to give rise to a range of positive and adverse effects. These include:

- Positive effects and associated social and economic benefits;
- Potential adverse effects (including cumulative effects) primarily on:
  - Water quantity, efficiency of use and the river flow regime;
  - Water quality;
  - Human health;
  - Ecology, including the passage of fish;
  - Downstream water users;
  - Recreational use of the river; and
  - Cultural values.

These matters are the subject of extensive information provided by the Applicant and assessed as part of the independent technical reviews. However, a summary of the key conclusions of these assessments is presented here and I have provided further analysis under each heading.

3.3.1 Positive Effects and Social and Economic Benefits

As described in the application and associated economic assessment, Alliance is a is a co-operative owned and supplied by 4,340 shareholder farmers, who supply more than 85% of the livestock processed at its five plants located in the South Island and two in the North Island.

The Mataura plant, which accounts for approximately 17% of Alliance's processing capacity, is located in the Gore District. In 2017/18, the plant processed approximately 143,000 cattle into meat, offal, hides and other products. Livestock were purchased mostly from Southland, Otago and Canterbury farmers.

The Plant was established in 1893 and is an important and integral component of the local and regional economy, employing approximately 500 people in the peak of the season and contributing approximately $160 million per year to the economy (mostly in livestock payments) and approximately $22 million per

year for wages and salaries for the 2017/2018 season. The latest estimate (December 2018) for the Mataura plant's insured value is $225 million.

The on-going operation of the Plant contributes to the economic wellbeing of the district and communities, including by:

- Maintaining significant direct and indirect employment and wages/salaries for local residents and providing employment choice;
- Maintaining significant levels of direct and indirect expenditure with local businesses;
- Maintaining population and economic activity levels within local communities thereby maintaining the level of services available to residents and businesses – continuing Alliance contributions to local community activities, in its role as a responsible employer and "good corporate citizen";
- Maintaining adequate capacity for stock processing in Southland, supporting this aspect of the region.

These benefits were the subject of the majority of submissions that were lodged in support of the applications. In addition to these benefits, the Applicant describes the on-going operation of the Plant as giving rise to resource use efficiencies, including:

- The continued use of existing plant and equipment and a trained and experienced workforce and businesses with appropriate expertise and experience, within close proximity of the plant;
- The minimisation of transport costs for livestock and finished product dispatch and the continued benefits from economies of scale and scope as compared to re-locating processing capability to a number of alternative sites; and
- The maintenance of population and economic activity levels (or "critical mass") in the Gore District and the Southland region, thereby providing economies of scale and competition in the local provision of goods and services.

Comment

I consider that the proposal will generate significant positive effects linked with the social and economic benefits of providing for the application.

In my opinion, the importance of the Plant to the local economy and its contribution to the social and economic wellbeing of the community is recognised and is not in dispute. In addition, the value of the investment in the Plant, both existing and future, is a matter to which regard must be had (section 104(2A) of the RMA).

3.3.2 Effects on water quantity, efficiency of use and the river flow regime

The effects on the water quantity and the flow regime in the Mataura River have not been identified as an adverse effect in Section 8 of the application, but has been addressed in Section 12 in relation to the relevant statutory framework for water quantity and use. In this regard, the Applicant advises:

- The sustainable flow regime in this catchment is set by the Mataura WCO and the proposed abstraction will take water in accordance with that flow regime;

- The take and use of water for cooling and process use will result in no net loss of water in the catchment;
- Because the proposed take and use of water will only reduce flows for a short 100 m section of the Mataura River, and the Mataura WCO will ensure that baseflows through that reach are maintained at 95% of the naturalised flow, the take and use of water does not have a high risk of adverse environmental effects;
- Monitoring of the water take is limited to recording the volume (cooling water) and rate (process water) of take, which reflects the minimal risk of adverse effects on the downstream flow regime (as almost all the take is returned to the river).

The Applicant provided further information in the first part of its response to the request for further information in which it advised:

- The existing resource consent authorising the take and use of process water provides for an abstraction of 14,400 m^3/day. Water use is tightly controlled at the Plant and only 8,000 m^3/day is required under this replacement application.
- While this replacement application is for a greater volume of water than has been actually used over the past eight or so years, the volume that has been sought provides the ability to meet peak water needs and to respond to potential changes in hygiene and market requirements. PDP advise that the level of water use is *'is in keeping with, but slightly higher than, water use rates at other large export meat plants*' with the slightly higher water use attributed to the level of tripe processing that occurs at the site.[13]
- Further, there is an expectation that this rate of take may be further reduced within the first three years of the new consent term by implementing a Resilience and Water Saving Strategy and reducing 'white water'. However, this requires further assessment.
- The cooling water system works by instantaneously abstracting water out of the hydro race and returning it to the hydro race immediately upstream of the abstraction point at the same rate as it is taken. The Applicant advises that it is truly a non-consumptive take and changing the rate of take of this activity has no impact on river flows downstream.
- Additional information was provided on the hydraulic characteristics of the weir, which diverts water to the two hydro races (Alliance and MIE), and enables water to be taken by Alliance for cooling and processing.

Comment

I concur with the statement that the flow regime in the catchment is driven by the Mataura WCO and I am advised by Environment Southland hydrology staff[14] that water is allocated and managed to meet the specified flow requirements within the Mataura WCO. I understand that water is allocated in blocks that align to river flows, such that when the river flow reduces below a set rate, a portion of the allocation is suspended so that the minimum flow percentages specified in the Mataura WCO are maintained. Not all

[13] PDP page 10

[14] Pers comm

granted consents are subject to flow-proportional reductions and the Applicant's existing consent is not subject to a flow 'cut-off'.

I am also advised by Environment Southland hydrology staff that the 'pinch point' for allocation is in the upper catchment, above the Applicant's site. Available allocation (under the Mataura WCO flow regime) increases towards the lower catchment as more water joins the river (and there are few downstream takes, which I discuss below).

In respect of the proposed takes and the weir use/damming and diversion, I advise that in my opinion:

- It is appropriate to consider the cooling water take as a 'non-consumptive take'. I consider that this take meets the definition of 'non-consumptive' in both the Water Take Regulations and the PSWLP.
- The take for processing and truck washing does not meet the definition of 'non-consumptive' in the Plan as it changes the biological condition of the receiving environment. Notwithstanding this, the majority of the water is returned to the river, albeit as process wastewater. This means that the flows in the river downstream of the Plant (other than the stretch between the weir and the discharge point) are likely to be substantially unchanged from those above the point of take.
- The key stretch of river where flows may be affected by the takes/diversion is from the weir to the point below the falls where the discharge from the Plant (and the MIE hydro-plant) is returned to the river – a distance of approximately 350 m. Flows through this stretch of the river primarily depend on the river flow and the amount of water diverted through the two hydro-races for hydro-generation. In low flows, the damming/diversion is required to maintain a minimum flow across the weir, imposed through water permit conditions that are consistent with the provisions of the Mataura WCO. This minimum residual flow (0.05 m over the centre of the weir - estimated to be 2.6 m^3/s[15]) through the Mataura Falls is lower than the minimum flow of the Mataura River (10.1 m^3/s), primarily as a result of the diversion down the hydro-races and associated (non-consumptive) takes by Alliance and MIE for hydro-electricity generation.

3.3.3 Effects on water quality

The effects on the water quality of the Mataura River have been described in Section 8.2 and Appendix 2 and 4 of the application and in the 4Sight Water Quality and Ecology Review (appended as Attachment 7A). I highlight what I understand to be the key water quality effects and issues as follows.

Zone of Reasonable Mixing

The application identifies that the current consent provides for a mixing zone of 250 m downstream of the discharge. The assessment provided in Appendix 4 of the Application indicates that the wastewater discharge appears to be fully mixed in the river within 100m of the wastewater discharge. However, from a practical perspective, the existing consent conditions set the compliance point at Mataura Bridge, approximately 300 metres downstream of the outfall, which provides safe access for sampling purposes.

[15] Weir and Fish Passage – APP-20191339, response from Alliance dated 14 October 2020. Page 2.

Comment

I have considered the extent of the mixing zone following my site visit. While the estimated mixing zone (100 m) is less than that prescribed in the current consent (250 m) and the point of compliance (Mataura Bridge – 330 m downstream of the point of discharge), I concur with the approach to setting the point of compliance as the Mataura Bridge. From my inspection of the site there does not appear to be any significant sources of water entering the river between the point at which full mixing wastewater discharge has occurred and the point of measurement at the Mataura Bridge. The Mataura Bridge also provides a safe and convenient location to sample the river.

Physio-Chemical Parameters

The Applicant advises that there is no evidence that the discharge from the Plant is causing measurable effects on pH, temperature, turbidity, total suspended solids (TSS), colour, clarity or DO.

The 4Sight Water Quality and Ecology Review and Dr Wilson in his technical evidence (attached as Appendix 8A), agree that the discharge does not appear to have any significant adverse effect on water temperature and dissolved oxygen, although he notes that potential effects are masked by the cooling and aerating effects of the Mataura Falls.

However, in respect of TSS, the review report advises that TSS concentrations in the discharge have shown an increasing trend and that at its current rate, the median TSS concentration will exceed the current consent limit of 100 g/m^3 by 2031. This will be reduced substantially (and order of magnitude) with the implementation of the biological treatment system, which is likely to reduce TSS concentrations closer to ambient/upstream concentrations. In his evidence, Dr Wilson advises that there do not appear to be adverse ecological effects as a result of the TSS increase below the Plant.[16]

Dr Wilson advises that because of the elevation in TSS downstream of the discharge, it is questionable whether the discharge is 'substantially free'[17] from a water quality perspective. However, Dr Wilson accepts the legal advice sought by Environment Southland (attached as Appendix 11) that the concentrations of TSS, oil, and grease appear to fall within the definition of 'substantially free'.

Comment

I address the issue of suspended sediment in respect of the requirements of the Mataura WCO in more detail in my assessment at Section 3.5 below.

Ammonia & Nitrate Toxicity

The Applicant concludes that the Plant's wastewater discharge is elevating ammonia concentrations in the Mataura River immediately downstream of the discharge – essentially reducing from Freshwater NPS[18]

[16] Page 19 of the evidence of Dr Wilson appended as Attachment 8.

[17] The term 'substantially free' appears in the Water Conservation Order 7(1)(a) and also the Receiving Water Quality Standards in the Proposed SWLP Appendix E and is referenced in para 52 of Dr Wilson's evidence.

[18] This is the terminology used in the application and refers to the NPS for Freshwater Management (2017)

Attribute State A for toxicity (annual medians 0.02 – 0.03 g/m^3) upstream of the Plant to Freshwater NPS Attribute State B (annual medians 0.05 – 0.06 g/m^3) downstream. However, the Applicant advises that this does not represent an effect which requires immediate or urgent mitigation on ecological grounds.

The 4Sight Water Quality and Ecology Review and Dr Wilson's evidence (appended as Attachment 8A), also indicate that the discharge substantially increases the concentration of ammonia in the Mataura River downstream of the discharge but that ammonia concentrations below the mixing zone are below the toxicity limit. Dr Wilson considers the effect of the discharge on ammonia concentrations in the Mataura River to be moderate to high (that is, a measurable and ecologically meaningful adverse effect). As a result, he recommends that the timeframes for the upgrade to the biological treatment system be reduced from the proposed 15 years, at which time he anticipates the effects to decrease to low.

Comment

I understand that the experts agree that there are minimal ammonia toxicity effects downstream of the mixing zone. However, there is the potential for toxicity effects within the mixing zone, which is an important area for species such as kanakana. This has been raised in the submission from the Department of Conservation, and identified in the CIAs prepared by Te Ao Marama Inc and Aukaha.

I agree with Dr Wilson that it is appropriate to implement the proposed biological treatment earlier than that proposed in the application.

Nutrients

The application advises that concentrations of DRP and DIN are very similar between upstream and downstream sites and that the monitoring data does not identify the Plant's discharge as having any notable impact on downstream concentrations. However, the mean monthly DIN and DRP concentrations at all sites upstream and downstream exceed the MfE periphyton guideline for protecting benthic biodiversity across all growth periods and significantly so for DIN. The proposed biological treatment system will reduce these levels once it is implemented. However, this is not proposed until 15 years after the commencement of the resource consent.

In respect of effects on the Toetoes Estuary, which is in a declining condition in relation to eutrophication due to excessive nutrient inputs, the Applicant advises that the contribution of the Plant's discharge to Toetoes Estuary Total Nitrogen (TN) loads is 1.1 - 1.7% and its contribution to Total Phosphorus (TP) is 0.7 - 1.3%, such that the majority of the TN and TP load entering Toetoes Estuary derived from other catchment inputs, particularly diffuse sources.

On this basis, the Applicant concludes that the effects of TN and TP in the Plant's discharge on Toetoes Estuary are no more than minor/negligible, and that the it will need to reduce its levels over time as part of catchment-wide initiatives to improve water quality. The Applicant advises that the biological treatment system, proposed to be commissioned in year 15, is expected to reduce the concentration of TN in the discharge by approximately 68% and annual loading by approximately 50% relative to present, although the Applicant expects this to have little, if any, detectable effect on the nutrient status of Toetoes Estuary in the absence of catchment-wide reductions.

Dr Wilson considers that the effect of the discharge on:

- The concentrations of nitrate in the Mataura River after mixing is very small;

- Phosphorous (DRP) in the Mataura River to be moderate to low.

In respect of overall nutrient loads, Dr Wilson agrees that the Plant contributes approximately 1-2% of the total nitrogen and phosphorus load from the catchment to the Toetoes Estuary. However, he considers this to be a substantial nutrient load in respect of the known elevated nutrient levels in the catchment and that it is not 'negligible', as described in the Application, but rather is disproportionate to the contaminant contribution of the other catchment land uses and activities. He concludes that the effect of the discharge of nutrient loads is moderate[19]. Dr Wilson advises that after the installation of biological treatment, this will reduce substantially.[20]

Comment

Nutrients are a key issue associated with both the Mataura River and downstream Toetoes Estuary, which is in a declining condition in relation to eutrophication due to excessive nutrient inputs. Nutrient effects on the Toetoes Estuary have also been identified as an important issue in submissions.

As I have indicated above, Dr Wilson considers this to be a substantial nutrient load in respect of the known elevated nutrient levels in the catchment and is disproportionate to the contaminant contribution of the other catchment land uses and activities. He considers the effect of the discharge of nutrient loads is moderate, reducing substantially following treatment.

While I acknowledge that the discharge from the plant is 1 to 1.5% of the total catchment load of TN and TP, I note that this is a substantially large catchment (5,400 km^2) that is primarily a high productivity agricultural catchment. In this context, 1 to 1.5% of the catchment load is not 'negligible' in the context of cumulative effects on the Toetoes Estuary.

At the same time, I accept that reducing the Plant's annual nitrogen discharge by approximately 50% will have minimal benefit for the estuary in the absence of wider catchment nutrient reductions. However, in my opinion, implementing the proposed treatment is consistent with best practice, as discussed in Ms Andrew's evidence.

E.coli

Both the Applicant and the 4Sight Water Quality Ecology Report identify that the Mataura River is subject to elevated *E.coli* concentrations such that largely sit in the 'red' NPS FM attribute state for microbial contaminants. These arise from a variety of point and diffuse sources, including upstream, downstream and the Plant discharges. In respect of the Plants contribution, the Quantitative Microbial Risk Assessment (QMRA) report[21] concludes that:

"E.coli concentrations increase significantly following discharge of the Alliance Plant wastewater. Also, E.coli concentrations reduce gradually downstream i.e. with increasing distance away from the discharge."

[19] Dr Wilson's evidence, para 51

[20] Dr Wilson's evidence, pages 11 to 13

[21] Appendix 3 of the Application

In his evidence, Dr Wilson provides the results of a summary of monthly E. coli sampling results collected by Environment Southland over 12 months from September 2018 to August 2019. He advises that:

The results below indicate that upstream of the Plant, concentrations exceeded 260 CFU/100mL on 58% and 25% of occasions in the Mataura River and Waikaka Stream at Gore and 100% of occasions downstream of the Plant. Following the approach described in the NPS FM (2020) Clause 3.27, such results would trigger daily sampling during the defined bathing period. Concentrations exceeded 540 CFU/100mL on 17% and 8% of occasions in the Mataura River and Waikaka Stream at Gore and 92% of occasions downstream of the Plant.

He concludes that: *'based on this information, it is likely that signage would be required at the Mataura Bridge bathing site throughout most of the bathing season'.*

However, the Applicant's experts and the Independent Technical Reviewers disagree as to the implication of this. The QMRA report indicates that despite the elevated levels of the indicator *E.coli*, the overall health risk associated with the discharge is low due to the low levels of pathogens in the discharge (this is discussed further below).

Comment

The experts agree that the Plant discharge contributes significantly to downstream levels of the indicator *E.coli*; however, the implications of this differ. In this regard, I note:

- The provisions of the NPS FM (Clause 3.27) requires Councils to monitor primary contact sites and implement public health management responses where *E.coli* levels are above 540 E.coli/100mL. Accordingly, the discharge may have significant implications for Council and the management of this popular swimming site, irrespective of the pathogen risk.
- *E.coli* concentrations will be significantly reduced (by approximately three orders of magnitude – 1,000 times) following disinfection and I understand that there will be some pathogen deactivation as well. That is, there is well proven technology that is able to substantially reduce the microbial concentrations in the discharge. Once the full upgrade has been undertaken, *E.coli* levels in the discharge will be similar to, or less than, background levels in the river.

Dr Wilson notes that the majority of pathogens generated on site will be discharged into the Mataura River. Because of this, he considers the discharge in its current state to have a significant adverse effect on *E. coli* levels in the Mataura River. He recommends that the wastewater treatment process is upgraded to include UV treatment as soon as practicable, rather than in five years as it is proposed in the application. As I discuss below, this aligns with Dr Poore's opinion.

3.3.4 **Effects on human health**

Applications

A key issue in respect of the discharge of elevated microbial concentrations is the risk to human health/contact (which a compulsory value under the NPS FM. That is, whether the elevated levels of the indicator *E.coli* constitute a public health risk to people undertaking contact recreation downstream of the Plant discharge. The Applicant has assessed the public health risk by means of a QMRA (Appendix 3 of the application).

The Applicant's QRMA concludes that, even at a discharge rate of 14,400 m^3/d (the maximum allowable under the current consent) and current levels of wastewater treatment, the health risk associated with swimming below the discharge is below 'the NZ threshold for tolerable risk'. This is primarily because of the relatively low levels of zoonotic pathogens in the discharged wastewater. The report notes that this is consistent with a previous study undertaken by ESR.

As a result, the report questions the suitability of *E.coli* as an indicator bacteria and the suitability of the current monitoring and advisory approach of the NPS FM, advising that *'such advisories do not present an accurate assessments of health risk associated with contact recreation, particularly because of the low-frequency monitoring that usually miss pollution events over shorter timescales'*[22].

In respect of the health risk determined by the QMRA, the report advises that:

"The current study thus fills some very crucial study gaps in the animal wastewater risk assessment terrain, as it shows using a robust microbiological monitoring program and quantitative risk assessment that the contribution that the discharge makes to the health risk associated with contact recreation downstream in the river and estuary is negligible."

On the basis of this assessment, the QMRA report concludes:

"While the Alliance Plant discharge is having 'more than a minor' effect on the levels of E. coli in the receiving water observed increases in E. coli concentrations as a result of the treated Alliance Plant discharge did not necessarily relate to the abundance of zoonotic pathogens neither did these increases in E. coli relate to the individual illness risk."

Independent Review

The health risk assessment and wider health matters were reviewed by Dr Marion Poore, whose report in provided in Attachment 7D. Dr Poore advises that there is a significant level of microbial contamination in the Mataura river from the discharge of animal wastewater from the Mataura Plant. This is of a level that creates a significant risk to the health of those who may use the water for swimming or contact recreation below the Plant. While the QRMA report indicates a low health risk associated with the discharge, due to the low levels of pathogens in the discharge, Dr Poore advises that this conclusion should be treated with caution as:

a) All samples of wastewater included one or more pathogens;

b) Wastewater sampling was not undertaken when pathogens loads are likely to peak;

c) The QRMA technique is complex and very few such studies on animal wastewater and impacts on human health have been completed.

Additionally, while establishing causal relationships between waterborne microorganisms and human illness can be challenging because of multiple pathways and underreporting of gastrointestinal infections, and technical issues around detecting pathogens in water, this does not mean the risk does not exist.

[22] QRMA Report, page 16

In contrast to the model-based approach of the Applicant, Dr Poore advocates a more precautionary approach. Further, Dr Poore advises that the most effective way to manage public health risk is to implement the proposed Plant upgrades as soon as possible – from a public health perspective, this particularly relates to the proposed UV disinfection although there will also be considerable additional benefit from the full wastewater treatment upgrade.

Comment

While there may be different opinions on the level of effect and health risk associated with the current discharge, there is no disagreement that the discharge significantly increases *E.coli* levels downstream of the Plant discharge. The implementation of UV disinfection will substantially reduce microbial concentrations in the discharge and hence reduce any potential health risks associated with microbial and pathogen contaminants. At present, the UV disinfection upgrade works are not proposed to be implemented for a period of 5 years from the commencement of the consent. Until this upgrade is implemented, the discharge will continue to increase *E.coli* levels below the discharge point and have potential effects on public health.

Based on Dr Poore's review, I conclude that the potential effects on human health appear to be more than minor (and potentially significant) until such time as UV disinfection is applied, and potentially minor once the full upgrade programme has been implemented. In this regard, I consider that the timeframes for the upgrade programme should be substantially reduced so that public health risks are reduced and appropriate managed.

3.3.5 **Effects on aquatic ecology, including the passage of fish**

Take and Discharge Application

The take and discharge application identified three key effects on aquatic ecology:

- Proliferation of nuisance algal growths

  Algal growths have been monitored upstream and downstream of the Plant at least annually since 2012. This monitoring has recorded variable algal cover and biomass between sites upstream and downstream of the Plant, and among surveys. It indicates that while DRP and DIN concentrations are relatively high, this is not stimulating periphyton growths upstream or downstream of the Plant except following a very long late summer – early autumn accrual periods (the most noticeable example of which was in February / March 2019).

- Reduced benthic invertebrate community health

  Benthic invertebrates are a commonly used indicator of ecosystem health. Overall, the benthic invertebrate community upstream and downstream of the discharge reflects the cumulative effect of catchment-wide inputs upstream and is generally in fair to poor health across most benthic invertebrate indices. While there has been some variation over time, both increasing and decreasing, there is no clear causal link between the discharge and any declines that were noted.

- Reduced fish abundance, diversity and health

  The lower Mataura River is a migratory pathway for a range of whitebait species, brown trout and salmon. Fish abundance and health can be influenced by a wide range of factors including proximity to the coast, barriers such as the Mataura Falls, habitat quality and water quality.

Results from fish surveys indicate that the fish community in run habitat is dominated by a small number of species – longfin and shortfin eel, elvers and upland bully. The fish community in the reach between the Mataura Falls and Mataura Bridge, indicates that the Mataura River immediately upstream and downstream of the discharge supports a healthy longfin eel population including several very large fish (+5 kg).

There is evidence of a large resident population of brown trout and late summer and early autumn runs of sea run brown trout and salmon are regularly seen and caught between the Mataura Falls and the Mataura Bridge. The presence of such large numbers of brown trout and seasonal migration of brown trout and salmon indicate that the water quality in this section of the river is suitable for supporting salmonids – which are amongst the most water quality sensitive species present in New Zealand.

The contaminants that can make fish unsuitable for consumption are persistent pollutants such as certain metals (e.g. mercury) and persistent organic pollutants (e.g. dioxins). There are no persistent pollutants of this type in the wastewater discharge and therefore adverse effects from the discharge on fish health or the consumption of fish are not expected.

Fish passage across the weir

The Applicant provided an assessment of the effect on fish passage across the weir in the Weir Application, and more detailed information following the pre-hearing meeting[23]. The Weir Application advises that the Mataura Falls, which are located immediately downstream of the weir, present a natural barrier to upstream fish passage. Its location further upstream means the weir only has the potential to present fish passage difficulties for fish species that have already negotiated the Falls.

The Applicant advises that the fish species which need to be considered in that context are eels (shortfin and longfin), lamprey, koaro, and brown trout. Of these, longfin eel passage is likely to be most difficult. The population of longfin eels upstream of the waterfall and diversion weir does indicate that both the Falls and the diversion weir are being climbed by elvers at times. However, the diversion weir does present a physical obstacle to the upstream movement of longfin elvers during some flow conditions (and any shortfin elvers present). To mitigate effects of the weir and associated damming and diversion of water on the upstream migration of these fish, existing resource consent AUTH.20171566-01 requires Alliance to implement an Elver Trap and Transfer Plan. These conditions are proposed to be transferred over to the new consent.

The weir also has a fish passage ladder at its apex, which is understood to provide for the passage of salmonid species (brown trout and chinook salmon). An inspection of the ladder was undertaken in February 2020. This inspection concluded:

"The visual inspection found no structural damage to the fish ladder. The fish ladder appeared to be functioning as designed at the time of the inspection. There was a small amount of wood debris caught at the top of the fish ladder.

[23] See Attachment 5

Assuming the original design was fit for purpose and because it was not damaged at the time of the inspection it is assumed the ladder continues to provide passage for salmonids that are able to traverse the Mataura Falls."

The assessment also indicated that there is anecdotal visual evidence that trout or salmon have been seen scaling the ladder.

Ecological Review

In respect of effects on aquatic ecology associated with the take and discharge, the 4Sight Water Quality and Ecology Review concluded that:

- No notable adverse effects of the discharge on biological communities were recorded, other than localised, short-term impacts on macroinvertebrate communities during periods of low, stable flow and high periphyton accrual.
- While ammonia concentrations outside the mixing zone were within the range unlikely to result in toxic effects for aquatic biota, there may be localised areas of elevated concentrations within the mixing zone that may impact fish and macroinvertebrate communities. The proposed treatment upgrade will significantly lower ammonia concentrations in the discharge and reduce the potential for adverse effects on biota.
- Proposed screening of water intakes to a mesh size of 2–3 mm is in line with best practice and is supported, to minimise the risk of entrainment of fish.

The evidence of Keren Bennett[24] further considers the potential effects further and advises:

- While there are no gross indicators of adverse effects of the discharge on the freshwater fauna of the Mataura River, the discharge contributes to cumulative degradation of the River water quality and the Toetoes Estuary.
- Given the national (NPS FM) and regional (operative and proposed Regional Plan) objectives to improve water quality, and the cultural and ecological values of the Mataura River and the Toetoes Estuary receiving environments, I am of the opinion that the 15-year timeframe anticipated for the treatment plant upgrade should be reviewed and reduced if practicable to achieve the anticipated benefits of contaminant load reductions in a more timely manner.

Ms Bennett's evidence also addresses the Weir Application and she advises that:

- Overall, the Weir Application provides no discussion of the potential long term effects of the weir on the river through that section to the Falls, including flow changes that may have impacted opportunities for fish passage through the Falls and bedrock sections of the river between the hydro-races. As an example, the weir's flow diversion to the hydro races may have limited the available pathways and reduced flow variability that assists migratory fishes' ability to migrate over and above the Mataura Falls.

[24] See Attachment 8B

- The application provides no assessment or discussion of any alternative options or means of diverting flow that have been considered, such as a reduced or remodelled weir structure. This lack of consideration of alternatives was also raised by Aukaha in their Cultural Impact Assessment.
- Effects on lamprey (kanakana) are not discussed in the application. These, along with eels, are considered taonga and important mahinga kai species by mana whenua. There appears to be no assessment of effects of the weir structure on these fish, which seasonally migrate from the sea as adults to breed and return to the sea as juveniles.

Ms Bennett concludes that the Weir Application provides little detail on the weir and omits information that would allow an informed assessment of ecological effects, particularly in relation to effects on fish passage for species other than eels. She reiterates the concerns that she raised in the 4Sight Water Quality and Ecology Review that:

- *In my opinion, the Weir Application provided little detail on the weir and implications for natural river functioning, however subsequent information provided in the Alliance memo added useful context. Inclusion of the conditions included in an existing resource consent associated with the hydro scheme and weir requiring an Elver Trap and Transfer Plan to be implemented, and for a fish ladder to be maintained is supported. The weir comprises a notable barrier to upstream fish migration. However, little is known of actual effects of the weir structure on populations of other migratory fish species, such as kanakana and koaro. Alternatives or amendments to the weir structure that may improve opportunities for upstream fish passage past the weir have not been adequately considered within the application. Simple measures, such as rounding of the 'lip' of the weir may improve opportunities for upstream passage of native climbing fish species. An assessment of other modifications that may improve opportunities for fish passage, while maintaining the functioning of the weir should also be considered.*
- *Review of the decision surrounding the damming and diversion of the river for use in the hydroelectric turbine (AUTH.20171566-01 and AUTH.20171566-02) indicate that a shortened consent period was applied in order to bring the end date in line with the expiry date associated with the adjacent MIE diversion and hydro turbine. The reason for this was, largely, due to the uncertainty surrounding potential effects of the diversion of flows through the turbines on downstream migratory fish, including adult eels and juvenile lamprey. The Commissioner considered the time period appropriate to enable both consent holders (Alliance and MIE) to collect information on effects of the weir and hydro schemes on downstream fish migration. The outcomes of that assessment may impact reconsenting of the hydro scheme and/or result in changes to the race and intake setup, including options such as screening of the intakes, or modifications to the weir to better allow for both upstream and downstream fish passage. Given that this consent was only recently granted, the assessment has yet to be completed. Accordingly, there does not appear to be any additional evidence to support a substantially longer term for the weir damming and diversion.*
- *Additionally, the weir applications separate the operation and use of the weir for the diversion of water to the hydro race for water takes (abstraction) from the diversion of water, using the same weir and hydro race, through the hydroelectricity turbine. It is difficult to see how they can reasonably be separated in that way, as the system is clearly linked. In my opinion, the overall use of the weir and hydro races may better be considered in conjunction with the hydro scheme during reconsenting prior to the 2026 expiry date for the two hydro schemes.*

Comment

There appears to be general agreement between the experts that the take and discharge activities were unlikely to be having notable adverse effects on aquatic biota, with the possible exception of areas within the identified mixing zones. The main point of contention appears to be the timing of the proposed upgrades to reduce adverse effects including nutrient loads and ammonia toxicity

In respect of the weir, I share the concerns expressed by Ms Bennett on the separation of the consents for damming and diversion from those associated with the hydro-generation activities and note the concerns raised by the Hearing Commissioner (Dr Rob Lieffering) in the recent (2019) decision that led to a short term consent being granted for the damming and diversion, and the hydro-scheme.

Further, I note that the results from the investigations required by the existing consents for the weir (AUTH-20171566-01 AUTH-20171566-02) including the Elver Trap and Transfer Plan and the Downstream Fish Migration Monitoring Programme, have yet to be received. Hence, there appears to be no additional information to that available to Dr Lieffering in support of a term of 35 years as sought in these applications for the use of the weir and the associated damming and diversion.

Notwithstanding this, I advise that I consider that the existing damming and diversion, and takes for the hydro-generation, form part of the 'existing environment' – for the term of the existing resource consents; subsequent to this term, they do not.

3.3.6 **Effects on downstream water users**

Takes and discharges have the potential to affect downstream users of water, both from a quantity and quality perspective. I have been provided information by Environment Southland on the consented (consumptive) takes in the Mataura Catchment. Those downstream (and immediately upstream) of the Plant are shown in Figure 2.

In my opinion, the proposed takes and discharges will not give rise to adverse effects on other users for the following reasons:

- The take is largely 'non-consumptive' and I am advised that available allocation increases below the Plant;
- The existing take consents are included in Environment Southland's total allocation for the catchment and the replacement applications are for lesser volumes than currently authorised;
- It is proposed to assess opportunities for further improvements in water use efficiency;
- There are no consented takes for potable water supply below the Plant discharge that may be affected by the discharges – the only downstream takes are for industrial use (including timber processing) and dairying; and
- The quality of the discharge is proposed to be improved over time, thus improving the quality of the water downstream.

Further, there have been no submissions from downstream users that indicate any concern that the applications may affect their takes.

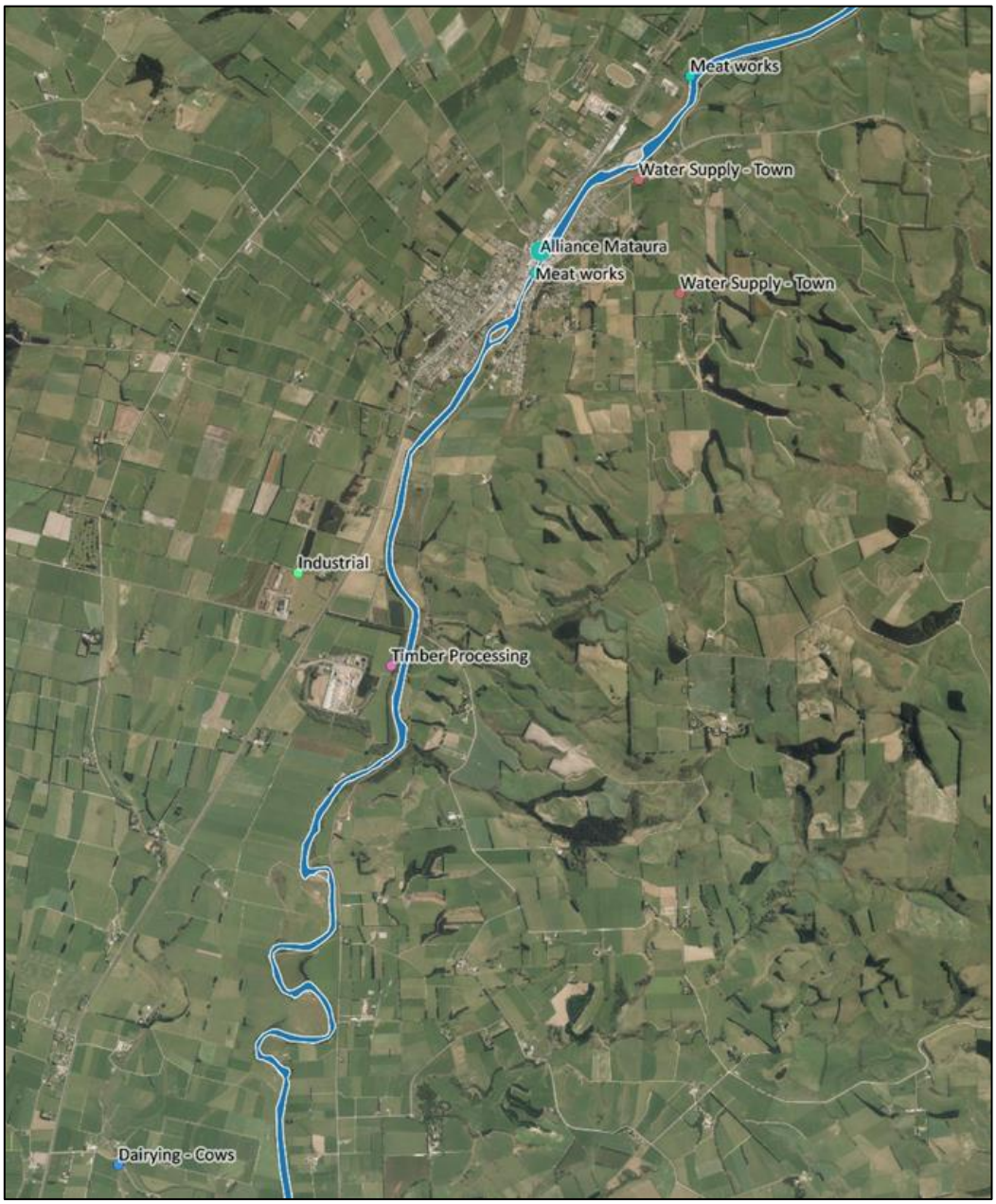

Figure 2: Consumptive takes downstream and immediately upstream of the Mataura Plant
Note: there are no additional takes further downstream; the majority of takes are upstream of the Plant and are not shown in the above figure

3.3.7 **Effects on recreational use of the river**

The Application included an assessment of effects on recreational activities[25], which include:

[25] Appendix 5 of the application

- The use of the river for fishing, and in particular the outstanding nature of the Mataura River for brown trout fishing both upstream and downstream of the site and weir;
- The relatively high use for swimming, both upstream and downstream of the Mataura River, and some kayaking;
- A very popular whitebait fishery in the lower reaches.

The assessment indicated that the parties that were interviewed agreed that the water quality in the river was better than it was in the 1980s, but there was disagreement about the current state ('possibly too clean' to 'horrendous').

There appears to be little information around illness from contact with the river, although a kayaker reported an illness after coming out of his kayak below the Mataura Falls. Public Health South has noted a lack of warning signs about water contact recreation along the Mataura River and their installation needs consideration at a regional level.[26]

The Weir application indicated that this section of the Mataura River is not popular for a variety of recreational pursuits (including boating, fishing or swimming) given the weir, the falls and the industrial activities. However, kayakers are understood to pass through this reach on occasion, although the falls provide a natural physical barrier. The assessment concluded that there is no evidence that the existing weir structure, nor the damming and diversion of water by that weir is having any notable adverse effects on these resources or activities.

Comment

I acknowledge that, as indicated in the assessment, it is difficult to attribute a causal relationship between the discharges and potential effects on the fishery within the river, particularly trout and whitebait. However, the discharge contributes to cumulative nutrient-related, microbial and potentially other adverse effects that may affect recreation activities. In my opinion, this supports the importance of reducing the microbial and nutrient quality of the water.

Further, the NPS FM directs the monitoring and management of sites that are identified as 'primary contact sites' within a Freshwater Management Unit (FMU)[27]. Given that the Mataura River Bridge is identified as a Popular Bathing Site in Appendix G of the PSWLP, it is likely that this site will be subject to the monitoring and management requirements under the NPS FM. This may have implications for signage or other methods of advising the public of potential health risks, consistent with the comments from Public Health South.

I note that other identified bathing sites on the Mataura River (which are upstream of the Plant) may also be subject to monitoring and management requirements due to other sources of microbial contaminants unrelated to the Plant discharges.

[26] Appendix 5, Page 6.

[27] Clause 3.27

3.3.8 Effects on Cultural values

As identified previously, a request for a Cultural Impact Assessment was included in the s92 request. In response, the Applicant provided:

- An initial CIA prepared by Te Ao Marama Incoporated (TAMI);
- Two CIA documents subsequently prepared by Aukaha on behalf of Hokonui Rūnanga – the first addresses the wastewater discharge; the second the various other activities for which consent has been sought;
- Minutes of a meeting held between representatives of Aukaha, Hokonui Rūnanga and Alliance following receipt of the Aukaha wastewater CIA document which discusses how the eight recommendations in the Aukaha wastewater CIA document may be actioned.

These are included in Attachment 2 to this report. The key matters identified in these CIA are summarised below.

TAMI Cultural Impact Assessment

This report identified the following values are of importance and need to be considered as part of this project:

- The rich cultural landscape of the Mataura Catchment, there are many wāhi tapu, wāhi ingoa, mahinga kai, Statutory acknowledgement, Māori land and a freshwater mātaitai.
- The need to consider the effects of this application as a ki uta ki tai approach. Effects can impact on cultural values upstream as well as downstream from the activity.
- Mahinga kai is highly significant in this catchment.
- The Mauri within the consenting area is significantly degraded.

The area where the application is taking place is already impacting on cultural values and has done so historically. There are impacts from upstream activities, the site has been significantly altered by the weir, hydroelectric plants and wastewater discharges. The current application is inconsistent with Iwi Policy and as such is considered to have a more than minor effect on cultural values. For Ngāi Tahu, the importance of maintaining equilibrium of the environment is central to the role of kaitiakitanga. Kaitiakitanga need not be in conflict with development but, in essence seeks to protect and preserve the special characteristics of the various elements of the environment.

The following points were specifically raised:

- Mahinga kai is gathered in the area upstream and downstream of the discharge area. Kanakana gathering is significant in this area.
- The expectation in the Iwi Management Plan that wastewater disposal will improve and with improved technology.
- Limited information in the application about effect of discharge on kanakana. They are listed as declining and protection is important.
- The adverse effects of wastewater discharge on wāhi tapu/archaeological sites near and downstream of the area.

- Improvements may need to happen faster due to impacts on mahinga kai and cultural values.
- Wastewater discharge is continuing to water and is considered culturally offensive.
- Duration applied for is inconsistent with Te Tangi a Tauira, 2008.
- Application is inconsistent with Te Tangi a Tauira due to discharging wastewater to water.
- Hokonui Rūnanga need to be included in any development of consent conditions.
- Continue to engage with rūnanga on how concerns can be addressed.

Aukaha Cultural Impact Assessment

This assessment provides a substantial overview of the cultural context and impact of the discharge activities. It indicates that consent renewals offer the opportunity to address longstanding cultural impacts that have occurred as a result of development and plant activities in this location. Hokonui Rūnanga wish to see actions that support river health and mahinga kai populations, particularly kanakana, as well as restore cultural identity and cultural practice associated with Te Au-Nui-Pihapiha-Kanakana/Mataura Falls.

The initial assessment provided eight recommendations to Alliance to address the issues that were raised, with a further four recommendations being provided in respect of the weir use, dam and diversion:

1. Support establishment of governance arrangements that enable Hokonui Rūnanga to exercise tino rangatiratanga and build a collaborative approach to managing the freshwater mātaitai for intergenerational outcomes.
2. Ensure the consent duration and/or consent conditions support exploration of alternatives that will enable discharges to the river from the meat plant to cease in time, working with Hokonui Rūnanga to determine the most appropriate path to achieve this outcome.
3. Support riparian restoration activity within the freshwater mātaitai and to the extent possible within the area of the meat plant.
4. Extend the existing trap, transfer and monitoring programme to manage passage of kanakana upstream and downstream of Te Au-Nui-Pihapiha-Kanakana.
5. Undertake regular monitoring at Te Au-Nui-Pihapiha-Kanakana and Tuturau that builds on cultural health and stream health monitoring undertaken by Ngāi Tahu, working in conjunction with Hokonui Rūnanga to design and implement this programme.
6. Support research into the health of kanakana populations in the Mataura River, in conjunction with Hokonui Rūnanga and research partners.
7. Explore options for improving access to Te Au-Nui-Pihapiha-Kanakana on the true right bank of the river.
8. Work with Hokonui Rūnanga to identify options for improving markers of cultural identity associated with Te Au-Nui-Pihapiha-Kanakana.
9. Continue to reduce abstraction rates through technological improvements and improved efficiency in plant operations, whilst complying with the flow management regime for the Mataura River.
10. Ensure that water intakes and fish screens are designed, installed and maintained to prevent harm to taonga and mahinga kai species.

11. Work with Hokonui Rūnanga to identify options for restoring natural function within the river at the weir site, including exploration of potential for a groyne, partial structure to dam and divert water, or alternative intake structure.

12. Utilise the period until expiry of consents associated with the weir and hydro race (on 7 November 2026) and/or a short term consent period to address the third recommendation.

Meeting Minutes: **Cultural Impact Assessment Report**[28]

The minutes of the Applicant's meeting with Hokonui Rūnanga on the CIAs outlined the discussions between the parties and the areas of agreement and further consideration. A key aspect of this is a Memorandum of Understanding between Alliance and Hokonui Rūnanga that covers a number of the recommendations.

Comment

The CIAs and submissions in opposition to the activities all identify the cultural values and significance of the Mataura River, including the Statutory Acknowledgement and the Maitaitai Reserve that is located in the vicinity of the Plant. This significance is acknowledged by the Applicant.

In respect of the recommendations made by Aukaha, I consider that a number of these are directly related to the activities for which consent is sought and able to be considered through these applications and, where appropriate, directed by conditions of consent, noting that some aspects are already proposed by the Applicant. However, I also consider that a number of the recommendations are appropriately addressed through on-going engagement with Hokonui Rūnanga as proposed.

I note that the meeting for which the minutes were provided was held in August 2019. It would be beneficial for the Applicant and Hokonui Rūnanga to provide an update from both their perspectives as to how the development (and implementation) of the MoU has progressed since that time, actions that have been agreed and what outstanding issues remain.

Notwithstanding this, I consider that the adverse effects of the proposals in cultural values are significant. However, these effects may be able to be mitigated to some extent through the term of the consent, monitoring and review conditions and other mitigation actions including an on-going relationship with Tangata Whenua.

3.3.9 Effects Conclusion

Section 3 of the RMA provides a very broad definition of 'effect' as including:

a) any positive or adverse effect; and

(b) any temporary or permanent effect; and

(c) any past, present, or future effect; and

(d) any cumulative effect which arises over time or in combination with other effects—

regardless of the scale, intensity, duration, or frequency of the effect, and also includes—

[28] Included in Attachment 2

(e) any potential effect of high probability; and

(f) any potential effect of low probability which has a high potential impact.

In respect of considering effects associated with applications for replacement applications, case law has been somewhat variable in its approach as to what constitutes the 'existing environment'. That is, what is the starting point of the assessment in terms of effects. To clarify this, Environment Southland sought legal advice as to the correct interpretation. This advice[29] advised that:

> '*The assessment [of what is the existing environment] can be difficult where existing activities are being reconsented. Until recently, there were differing lines of authority on whether regional resource consents that were being replaced should be considered as part of the "environment". However, in Ngāti Rangi Trust v Manawatu-Whanganui Regional Council, the High Court confirmed that the correct approach is the "environment" should be considered as if the activity being reconsented is ceasing.*
>
> *Accordingly, in our opinion, the Application should be assessed as if the current Alliance discharge is not occurring. This means that the effects of the discharge on the Mataura River must be considered in their entirety, rather than those effects being discounted as already being present in the environment.'*

I accept this position. Regional consents are subject to terms no longer than 35 years and there is no guarantee that an activity will automatically continue past the term of any consent. However, I also note that from a planning perspective, the consideration of the effects of an existing activity as if it does not exist creates some challenges when applying statutory instruments, such as the NPS FM and regional plans, that seek the maintenance or improvement of the environment from its current state.

In this light, my conclusions regarding effects incorporate a consideration of the contribution of the discharge to water quality above background levels in the river (i.e. as if the discharge was not occurring). Accordingly, I consider the positive effects (and associated social and economic benefits) and adverse effects associated with the take and discharge and weir/damming/diversion consents as follows:

- The importance of the Plant to the local economy and its contribution to the social and economic wellbeing of the community is significant and as a consequence, the proposal generates a range of positive social and economic benefits;
- The value of the investment in the Plant, both existing and expenditure on future improvements, is substantial;
- The cooling water take is a 'non-consumptive take', while the take for meat processing and truck washing does not meet the definition of 'non-consumptive' in the PSWLP and the Water Take Regulations;
- Notwithstanding the above conclusion the full water volume that is taken is returned to the river downstream of the wastewater discharge point, albeit in part as wastewater;
- The key water quality issues associated with the Plant discharge are related to:

[29] Attachment 11: Memorandum from Wynn Williams - 23 October 2020

- *E.coli* – the discharge results in a significant increase in *E.coli* levels below the discharge – and will result in more frequent and prolonged exceedances of health guidelines. I consider this to be a potentially significant adverse effects that will be reduced substantially following the implementation of UV disinfection, and further following the proposed biological treatment;
- Ammonia toxicity (primarily within the mixing zone). I consider this to be an adverse effect that has the potential to be more than minor – but that there is insufficient evidence to confirm this. The potential for adverse effects will be reduced substantially to be minor following biological treatment.
- The contribution to cumulative catchment nutrient loads and associated effects on nuisance algal growth and nutrient loads to the downstream Toetoes Estuary. Dr Wilson has assessed this to be moderate, reducing substantially following biological treatment. I consider the cumulative effects of nutrients, including the discharge, to be more than minor – but that the same conclusion would likely apply in the absence of the discharge.
- The biological treatment will substantially reduce nutrient loads in the discharge, but that this reduction is unlikely to result in a material improvement in the Toetoes Estuary without wider catchment reductions.

- Human health risk, particularly associated with contact recreation within the river, may be more than minor and potentially significant – although I acknowledge that the experts do not agree on this point – until such time as UV disinfection and biological treatment is applied. It is likely to be minor or less than minor beyond that point;
- There are no downstream water supplies for potable water and the take and discharges are unlikely to affect other users;
- Effects on recreational activities are subjective and difficult to quantify – however, any existing effects will reduce as the quality of the discharge is progressively improved;
- The significant trout fishery both up and downstream of the site and the weir indicate that the activities do not have notable effects on this fishery;
- The existing weir may provide a barrier to passage of fish and the effects on some species have not been fully determined; however, it forms part of the existing environment until the current consents expire;
- The requirements of the NPS FM are likely to require more extensive monitoring and public health risk management of the identified bathing site at the Mataura River Bridge;
- The Mataura River is culturally significant, reflects the long association of Maori with the river. This is in part demonstrated by the Statutory Acknowledgement and the Mātaitai Reserve that is located in the vicinity of the Plant;
- Effects on cultural values are significant, in part due to historical modification activities such as the river weir, and also the on-going discharge of wastewater to the river, which is considered culturally offensive and has the potential to affect customary uses, including mahinga kai;
- A range of recommendations have been made to partially mitigate cultural effects; some of these are appropriate considered through these applications, while others can be delivered in coordination with Hokonui Rūnanga.

3.3.10 **Consideration of Alternatives**

Application

While not an adverse effect, the consideration of alternative options for the discharge (in particular land based disposal) has been raised in several submission and an assessment of alternative treatment and discharge options was provided in Appendix 7 of the Application.

Shortlisted options included the option proposed in the consent application (Option 1C – biological nitrogen removal and UV disinfection) and a 'dual discharge' (Option 4A - river discharge and land irrigation). Under this second option, wastewater would be discharged to land when ground conditions allow (generally summer) and discharged to the river when ground conditions are not conducive to land irrigation (typically winter and following heavy rain). This option has the advantages of a low volume of wastewater discharged to Mataura River during summer months (and typically low river flows), reduced total annual contaminant loads to the river, significant resilience and reduced associated cultural, water quality and other adverse effects. However, it is noted that this option did not include biological nitrogen removal and disinfection – such that any discharge to the river would be at the same quality as currently discharged.

The report identified that the continued discharge of wastewater to the Mataura River was the preferred option, but with a reduction of both nitrogen and *E. coli*. The report advised that the identification of the primary contaminant of concern (*nitrogen or E.coli*) would clarify the upgrade approach and timing in accordance with a general approach of:

1. Address system resilience issues;
2. Implement water reduction opportunities;
3. Programme towards treatment plant upgrades:
    a. UV disinfection if *E.coli* was identified as the contaminant of concern;
    b. The full system if nitrogen was the contaminant of concern;
    c. The addition of alum dosing if phosphorous is the contaminant of concern.

Further information on the options assessment was provided on 29 October 2020[30]. I have summarised the conclusions of this report in Section 2.8 above. This further report identified the key constraints that contribute to the discounting of the establishment of a reliable comprehensive land treatment system.

Wastewater Technical Review

The Application and associated options report was subject to a technical peer review by 4Sight (Attachment 7B)[31]. This report recommended:

[30] Attachment 6.

[31] Technical Review – Mataura Processing Plant Resource Consent Applications - Wastewater Assessment

- As the AEE is based on data resulting from an annual discharge flow in the order of 1,100,000 m^3, lower monthly average and monthly and annual limits are recommended[32].
- The continuation of a full or partial river discharge only be considered once further sufficient evidence is provided to demonstrate that land-based discharge is not a practicable option (or is associated with higher level of adverse effects). Further evidence/justification is also recommended to adequately demonstrate whether the environmental effects of a land-based discharge can be managed and mitigated.
- Further investigation into a seasonal discharge option and the potential water quality benefits associated with this.
- If discharge to land is not feasible then it is recommended that:
  - Both *E. coli* and nitrogen are considered as priority contaminants of concern and their concentrations should be reduced in the wastewater discharge;
  - Full biological treatment will become necessary together with tertiary disinfection of microbial contaminant as it is the most effective in reducing contaminant loads of *E. coli* and nutrients to the Mataura River;
  - The proposed 15-year staged approach for the treatment plant upgrade should be reviewed and its timeframe reduced to achieve the benefits proposed in a more timely manner;
  - A broader range of technologies should be further investigated as practicable options;
  - Other opportunities could be investigated that incorporate waste to energy conversion and provide broader benefits in not only reducing the discharge of contaminants to the river but also provider cleaner energy from methane production.

The addition information that was provided in respect of disposal options was considered by Ms Andrew in her evidence. She agrees that options for land disposal (full or partial) are limited and may be deemed not the best practicable option and lists her reasons for conclusion. She concludes that on the basis that the discharge to the river continues, then the proposed upgrade to the treatment system is appropriate to move towards best practice and achieve a significant reduction in nutrient and microbial contaminant loads, subject to the following:

a. A maximum daily limit, monthly average, and monthly and annual limits each be set to ensure that the annual discharge load does not substantially increase beyond what is currently discharged.

b. The timeframe for the treatment plant upgrade be reduced to achieve the identified benefits in a more timely manner.

c. Further investigation and consideration into technologies that could reduce or remove the need to discharge to the river should be undertaken, and flexibility should be provided in the consent conditions to reflect this if a staged upgrade is approved.

Comment

While alternatives have been assessed, concern has been expressed by all the submitters in opposition that cost has been the determining factor in not pursuing alternative discharge options, particularly land based

[32] The Applicant's proposed conditions currently have a single wastewater discharge volume limit - 8,000m^3/day

disposal. Additionally, the 4Sight Wastewater Review recommended further consideration of alternatives, including a dual discharge (land/river) option.

The subsequent information provided by the Applicant further indicates that a land disposal option is challenging and that a full year land discharge option is unlikely to be feasible. This is accepted by Ms Andrew, but she considers that further investigation and consideration into technologies that could reduce or remove the need to discharge to the river should be undertaken, and flexibility should be provided in the consent conditions to reflect this if a staged upgrade is approved.

From the information provided, I have concluded that:

- A land disposal option has not been identified as being a feasible or practicable option at the present time. This does not mean that further consideration should not be given to land disposal, including a dual discharge option or potentially other options, and this should continue to be explored with a view to further progressively reducing contaminant discharges to the river.
- Both *E.coli* and nutrients should be considered priority contaminants. Of the two contaminants, I accept the advice of Dr Wilson and Dr Poore that *E.coli* is the more pressing issue and should be addressed as the priority.
- UV disinfection and biological treatment of the discharge should be implemented as soon as reasonably practicable, and substantially sooner than that proposed by the Applicant.
- The discharge consent should not preclude, and ideally should encourage, further improvements to be undertaken, particularly to determine if the discharge can be removed from the river and improvements that may be required to meet future requirements established through the Mataura FMU/National Objectives Framework (NOF) process.

3.4 Relevant provisions of National Environmental Standards and other regulations

3.4.1 Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F)

The NES-F came into force on 3 September 2020 and include standards that relate to freshwater. Subpart 3 addresses the passage of fish affected by structures, and includes standards for dams and weirs that may be of potential relevance to the existing weir for which consent to use and dam and divert water has been applied for. However, clause 60 indicates that Subpart 3 does not apply to an existing (as of 2 September 2020) structure.

Accordingly, I conclude that there are no requirements of the NES-F that are relevant to the applications.

3.4.2 Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NES-SHDW)

The NES-SHDW is potentially relevant to any application for a discharge permit and aims to reduce the risk of drinking water sources being contaminated. Regulations 7 and 8 of the NES-SHDW only apply to an activity that has the potential to affect a registered drinking-water supply that provides no fewer than 501 people with drinking water for not less than 60 days each calendar year.

A review of the Drinking-water Register for New Zealand[33] and resource consents for the abstraction of water[34] indicate that there are no abstractions for public water supplies from the Matuara River downstream of the discharge.

Accordingly, I conclude that the NES-SHDW is not relevant to the applications.

3.4.3 Resource Management (Measurement and Reporting of Water Takes) Regulations 2010

Accurate, complete and current water information is a critical building block in establishing a water management system in which water is effectively allocated and efficiently used. The Water Take Regulations apply to holders of water permits (resource consents) for non-consumptive water takes that allow fresh water to be taken at a rate of 5 L/s or more.

An amendment to the regulations to introduce stricter regular measuring and reporting requirements came into force on 3 September 2020. The amendments introduce a staged timeline requiring holders of consent to take between five and more than 20 litres of water a second to:

- measure their water use every 15 minutes,
- store their records, and
- electronically submit their records to their council every day.

The Application advises[35] that water measurement requirements were addressed in detail in respect of the takes, with the conclusion being that:

- The take and use of water for Plant processing activities, including water that is used for cleaning, potable water supply, wastewater processing and truck washing, should be subject to water metering in accordance with the Water Measuring Regulations; but
- The take and use of water for engine room cooling water and condenser water is to be estimated and reported by combining the records of discharge monitoring, take monitoring, pump capacities and pump operation.

I accept this approach. In my opinion, the take for processing activities should be considered a consumptive take while the take for cooling water is a non-consumptive take.

Accordingly, the take of water for processing activities will need to meet the requirements of the Water Take Regulations. Section 12 of the regulations allow for consent conditions to be more stringent than the regulations. However, I consider that more stringent monitoring and recording conditions are not required in this circumstance, particularly as the water is eventually returned to the river.

[33] https://www.esr.cri.nz/our-services/consultancy/water-quality-and-sanitation/register-of-suppliers/

[34] Provided by Environment Southland on 13 October 2020

[35] Page 96

3.5 Water Conservation (Mataura River) Order 1997 (Mataura WCO)

The Mataura WCO is relevant to the applications in that it restricts the granting of resource consents in some circumstances. In particular, the Mataura WCO:

- Specifies minimum flow rates at various locations in the Mataura River (Clause 4);
- Specifies that water take or discharge permits must not be granted if they would contravene the provisions of this order (Clause 5);
- Prohibits the damming of the main stem of the Mataura River, except that this prohibition does not apply to water permits in respect of the existing weir structure at Mataura *if the water permits are granted to similar terms and conditions to which the former permits were granted* (Clause 6).
- Specifies that a discharge permit must not be granted if identified water quality standards are breached; those of relevance to these applications are:

  Clause 7(1)(a): any discharge is to be substantially free from suspended solids, grease, and oil: and

  Clause 7(1)(d): after allowing for a reasonable mixing of the discharge with the receiving waters in those parts of the protected waters other than the parts specified in paragraphs (b) and (c),—

  (i) the natural water temperature must not be changed by more than 3 degrees Celsius:

  (ii) the acidity or alkalinity of the waters as measured by the pH must be within the range of 6.0 or 9.0, except when due to natural causes:

  (iii) the waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours:

  (iv) there must not be any destruction of natural aquatic life by reason of a concentration of toxic substances:

  (v) the natural colour and clarity of the waters must not be changed to a conspicuous extent:

  (vi) the oxygen content in solution in the waters must not be reduced below 5 milligrams per litre.

In my opinion, the Mataura WCO does not preclude the applications being granted under Clause 5 (and other clauses) for the following reasons:

Minimum flow rates

- The cooling water take is a 'non-consumptive', such that the water is immediately returned to the river within the hydro-race. As such, this abstraction does not affect flow rates within the river below the discharge from the hydro-races.
- While the take for processing and truck washing does not meet the definition of 'non-consumptive' in the PSRLW Plan/Water Take Regulations the majority of the water is returned to the river, albeit as process wastewater, such that the flows in the river downstream of the plant (other than the stretch between the take and the discharge point) are likely to be substantially unchanged.
- The key stretch of river where flows may be affected by the takes is from the weir to the point below the Mataura Falls where the full discharge from the plant is returned to the river. Flows through this stretch of the river are required to be maintained by a minimum flow across the weir, imposed through water permit conditions, consistent with the provisions of the Mataura WCO.

- The current plant take of 35,600 m^3/day is currently identified by Environment Southland as a 'consumptive' take and hence is already provided for in the calculations of allocated water under the Mataura WCO. The applications seek to reduce this allocated volume. Hence the takes will not result in the exceedance of allocation limits.

Use of the Weir and associated damming and diversion of water

- The existing weir is explicitly provided for in the Mataura WCO, provided that any consent is subject so similar terms and conditions to which the former permits were granted. The primary issues are associated with the provision for fish passage and minimum flows over the weir. The original water right was provided by Alliance in response to the pre-Hearing Meeting and is included in the information in Attachment 5. Similar conditions can be applied to any new consent for the weir.

Water Quality Standards

- Dr Wilson has addressed the water quality standards in his evidence. He concludes that the discharge is consistent with the relevant requirements of Clause 7(a) – being substantially free of suspended solids, grease, and oil.
- In coming to this conclusion, he has relied on legal advice sought by Environment Southland[36] as to how the term 'substantially free' should be applied. This advice concludes:

  "Applying the principles of statutory interpretation, we consider that the phrase "substantially free" means to be "for the most part or significantly not affected by" something. Given the purpose of the Mataura WCO, we consider this contemplates a very low concentration of contaminants, such that they would not give rise to adverse effects on water quality in the protected waters. It does not require the discharge to be entirely free of suspended solids, grease, and oil or that such contaminants are undetectable in the discharge.

  Some guidance may be taken from the concentrations accepted by the Planning Tribunal under the Water and Soil Conservation Act 1967. These cases indicated that concentrations of 30g/m^3 and 150g/m^3 of suspended solids, and a concentration of 75g/m^3 of grease and oil, in a discharge would still be considered "substantially free".

  The Application proposes a discharge with a median Total Suspended Solids concentration of 67g/m^3 and median oil and grease concentration of 13g/m^3. Given our opinion detailed above, we consider that it is likely that the Environment Court would find the discharge to be "substantially free" of suspended solids, grease and oil. However, we recommend that the Council seek input from a water quality expert about the level of contaminants that would have no detectible adverse effect on the Mataura River (having regard to the rate of flow at the point of discharge and following reasonable mixing)."
- Dr Wilson[37] has concluded that:

  "TSS concentrations are 27% higher downstream of the discharge than they are upstream. Elevated concentrations downstream from the Plant may also arise from the increased mixing from the Mataura Falls. Because of such elevation in TSS downstream of the discharge, it is questionable

[36] Attachment 11: Memorandum from WynnWilliams, 11 December 2019

[37] Dr Wilson's evidence, para 91

whether the discharge is substantially free from a water quality perspective. However, there do not appear to be adverse ecological effects as a result of the TSS increase. Based on the cases cited by the legal advice sought by Environment Southland, the concentrations of TSS, oil, and grease appear to fall within the definition of 'substantially free'. After the installation of a biological treatment system, I anticipate that the discharge would have a low effect on TSS downstream of the discharge and be more likely to be 'substantially free' from a water quality perspective."

- In respect of the ability to meet the necessary standards in Clause 7(d), the evidence of Dr Wilson indicates that the standards in respect of temperature, pH and dissolved oxygen are met (7(d)(i), (ii) and (vi).
- In respect of colour and clarity (7d (v)), monitoring results provided by the Applicant[38] indicate that there is only marginal differences in colour between upstream and downstream sites. The clarity of water is more variable between upstream and downstream, with differences between the downstream and upstream sites ranging from -20% to + 1% (downstream). However, all results have been above (better than) the MfE guideline for swimming waters. As such, I accept the Applicant's position that the waters will not be changed by a conspicuous extent.
- In respect of toxic effects or tainting of water that may be unsafe or unpalatable and emit odours (7d(iv) and (v)) after reasonable mixing:
  - the discharge does not include added chemicals that may result in toxic effects. As discussed above, the discharge increases downstream ammonia, but this is not at levels that are toxic after reasonable mixing;
  - While the discharge elevates *E.coli* levels to an extent that may make the water unsafe for human drinking water, I note that the NES-SHDW refer to meeting health quality criteria after treatment. That is, it is not expected that all freshwater will be safe for human consumption without treatment;
  - While the application indicates some anecdotal information of odours in the vicinity of the Plant discharge, there appears to be no evidence of odours being emitted downstream after reasonable mixing.

3.6 National Policy Statements

Two National Policy Statements are relevant to the proposed applications, the National Policy Statement for Freshwater Management 2020 (NPS FM) and the New Zealand Coastal Policy Statement, to the extent that the activities have the potential to affect the coastal environment.

3.6.1 **NPS FM**

Background

The NPS FM came into force on 3 September 2020, replacing the former NPS FM in its entirety. The NPS FM is divided into a series of parts, with Part 2 comprising the objectives and policies, Part 3 providing actions required to give effect to Part 2, and Part 4 addressing timing and transitional arrangements. The

[38] Appendix 2 to the Application, page 44

appendices largely detail the National Objectives Framework, including compulsory and other values, attributes and associated attribute states and a national target for primary contact.

Fundamental Concept

Central to the NPS FM is the concept of Te Mana o Te Wai, which is described as:

"a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community."

Te Mana o Te Wai encompasses six principles relating to the roles of tangata whenua and other New Zealanders, these are:

Mana whakahaere: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater

Kaitiakitanga: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations

Manaakitanga: the process by which tangata whenua show respect, generosity, and care for freshwater and for others

Governance: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future

Stewardship: the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations

Care and respect: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

Aligned to these principles is a hierarchy of obligations that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

Objectives and Policies

The NPS contains one objective, which is to ensure that natural and physical resources are managed in a way that prioritises the hierarchy of obligations I have presented above:

1. health and well-being of water bodies and freshwater ecosystems;
2. health needs of people (such as drinking water);
3. the ability of people and communities to provide for their social, economic, and cultural well-being.

In my opinion, these applications clearly align with aspects of the third of these three priorities, social and economic well being in respect of jobs, economic benefit and contribution to essential food processing for

local and export markets. However, Tangata Whenua have raised concerns in relation to effects on cultural values.

As I have advised above, I consider that the applications do not affect the supply of water for drinking water, but there is the potential for some health effects associated with contact recreation, particularly before the UV disinfection upgrade works are implement. However, this can be substantially mitigated by the proposed disinfection.

In my opinion, the primary issue is the extent to which the proposals affect the health and 'well being of water bodies' – notably the Mataura River and Toetoes Estuary – and associated freshwater ecosystems.

In respect of the policies, there are a number of relevance that I discuss in my assessment below.

Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai.

Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.

Policy 3: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.

Policy 5: Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.

Policy 7: The loss of river extent and values is avoided to the extent practicable.

Policy 8: The significant values of outstanding water bodies are protected.

Policy 9: The habitats of indigenous freshwater species are protected.

Policy 10: The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.

Policy 12: The national target (as set out in Appendix 3) for water quality improvement is achieved.

Policy 15: Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.

In addition to these over-arching policies, Subpart 3 directs councils to insert specific policies in their regional plans. While the NPS FM is very recent, and the policies have yet to be inserted into the regional plans, I consider it appropriate to have regard to these policies as if they formed part of the relevant regional planning framework. Accordingly, I address those policies in my assessment of regional plan provisions that follows.[39]

[39] I assess the relevant policies in my assessment of the Operative Plan in Section 3.8.2 below.

In relation to values, and specifically the loss of value, the NPS FM defines this as:

***loss of value**, in relation to a natural inland wetland or river, means the wetland or river is less able to provide for the following existing or potential values:*

a) any value identified for it under the NOF process; or

b) any of the following, whether or not they are identified under the NOF process:

(i) ecosystem health

(ii) indigenous biodiversity

(iii) hydrological functioning

(iv) Māori freshwater values

(v) amenity

That is, loss of value is defined to encompass all values (including potential values) and does not relate to total loss of value, but also incremental loss.

Further, in relation to natural inland wetlands and rivers, the NPS FM defines an effects mitigation hierarchy as follows[40]:

***effects management hierarchy**, in relation to natural inland wetlands and rivers, means an approach to managing the adverse effects of an activity on the extent or values of a wetland or river (including cumulative effects and loss of potential value) that requires that:*

a) adverse effects are avoided where practicable; and

b) where adverse effects cannot be avoided, they are minimised where practicable; and

c) where adverse effects cannot be minimised, they are remedied where practicable; and

d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; and

e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; and

f) if aquatic compensation is not appropriate, the activity itself is avoided

Section 3.27 is also relevant to the management of identified primary contact sites. It requires councils to monitor these sites for microbial water quality (*E.coli*) and to initiate public notification where microbial levels are elevated above specific guideline values.

In addition to these provisions:

- Sub-part 2 outlines the National Objectives Framework (NOF) process;
- Appendix 1A and 1B outline the compulsory values that must be included under the NOF and other values that must be considered;
- Appendix 2A provides attributes and associated attribute states – where relevant, these have been addressed in the discussion of water quality effects above;

[40] Note that the application of the effects mitigation hierarchy relates to policies required to be inserted into regional plans. Accordingly, I discuss this in my assessment of the Operative Plan below in Section 3.8.2.

- Appendix 3 provides a national target for primary contact (swimmability).

Assessment

The NPS FM took effect on 3 September 2020, so is relevant to the processing of the Application.

The objectives and policies of the NPS FM are a substantial redraft of the previous NPS and currently there is limited implementation guidance. However, as a higher order planning document that has been recently released, it cannot be assumed that the operative and proposed regional plans give effect to it. Hence, in my opinion, specific regard must be given to its provisions and that these provisions take precedence should there be a conflict between the NPS FM provisions and those of the regional plans (which must give effect to an NPS) – particularly those that are directive[41]. Accordingly, I have assessed each relevant policy below.

I consider that the NPS FM is focussed on the implementation of the NOF at an individual freshwater management unit level to give effect to its objectives and policies, and in particular Te Mana o Te Wai. For example, Sub-part 1, Clause 3.2 states:

(1) Every regional council must engage with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region.

The NOF process in Clause 3.7 (2) outlines the steps to be taken in achieving this, while Clause 3.2 (2) directs how regional councils must give effect to Te Mana o Te Wai. The RMA directs that Regional Councils have until 31 December 2024 to notify regional plans (or plan changes) that give effect to the NPS FM. This comprehensive process will determine what Te Mana o Te Wai means and how it is applied in both the Southland context and the specific FMU level. This in turn will guide the values, objectives, attribute and limit setting process and then be applied through subsequent plan and consent processes.

I note that the PSWLP was drafted to give partial effect to the NPS FM 2017, and that while the NOF process is underway, it has yet to be completed. A key issue for this hearing is therefore how to 'give regard to' the NPS FM in when the NOF process specific to this catchment has not been completed. That is, how to assess the application when the application of Te Mana o Te Wai – the specific values, objectives and target attribute states and limits relevant to the Mataura River FMU – have yet to be established.

Below, I address each of the relevant polices in turn.

Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai.

Environment Southland has sought legal advice as to what Te Mana o te Wai, as provided for in Policy 1 of the NPS FM, means in the absence of the NOF process having occurred on a regional scale. The advice[42] concluded:

[41] See also Attachment 11: Memorandum from WynnWilliams, 6 November 2020

[42] Attachment 11: Memorandum from WynnWilliams, 6 November 2020

Regardless of the extent to which the NPSFM has been given effect in the Council's planning framework (i.e., regardless of whether or not the Part 3 Implementation steps have been completed), regard must still be had to the objective and policies of the NPSFM when assessing resource consent applications under s 104 of the Act.

Policy 1 of the NPSFM requires that "Freshwater is managed in a way that gives effect to Te Mana o te Wai." Te Mana o te Wai is defined in the NPSFM as having the meaning set out in clause 1.3.

The hierarchy of obligations (expressed in both clause 1.3 and the objective of the NPSFM) will be relevant to the assessment of effects of a proposed activity, regardless of whether the NOF process has occurred on a regional scale. This hierarchy of obligations prioritises:

a. first, the health and well-being of water bodies and freshwater ecosystems

b. second, the health and needs of people (such as drinking water)

c. third, the ability of people and communities to provide for their social, economic and cultural well-being, now and in the future.

Accordingly, the question of whether a proposed activity will first, prioritise the health and well-being of a particular water body and freshwater ecosystem, before going on to provide for other needs, will be relevant to both the Council's notification decision and its decision on the substantive grant, regardless of whether limits that give effect to Te Mana o te Wai have been included in the planning framework.

I concur with this advice. As I have indicated previously, the primary obligation imposed by the NPS FM is to protect the health and wellbeing of freshwater bodies and ecosystems. In respect of the impacts on the freshwater ecosystems, based on the advice of the technical experts, there are no notable effects of the discharge on aquatic ecosystems outside of the mixing zone. However, the continuation of the discharge will contribute to ore than minor cumulative effects on the Toetoes Estuary, which is in a declining state.

In respect of the health of the water bodies from a water quality perspective, the primary contaminants of concern are *E.coli,* ammonia and nitrogen. These can be reduced through appropriate treatment and management, as described in the application. Based on the technical review and the evidence of Dr Wilson, the discharge prior to improvements will result in a more than minor impact on water quality (and the Toetoes Estuary). This will reduce substantially (to be low or low/moderate) following improved treatment. In my opinion, for the applications to be consistent with this policy, the proposed upgrades should be undertaken as soon as practicably feasible.

Cultural health indicators have yet to be determined and assessed, although this is identified as an action in the minutes of engagement meetings with Hokonui Rūnanga.

Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.

The section 92 response includes a CIA that has identified cultural values associated with the river and its surrounds. It advises that the on-going discharges of wastewater and the continued use of the weir are a significant adverse effect and are opposed by tangata whenua. Engagement with Tangata Whenua is on-going, including the development of an MoU with Hokonui Rūnanga that will set out governance and

relationship arrangements between the two parties to develop an enduring relationship that extends outside of consent processes.

As I have previously indicated, it would be beneficial for the Applicant and Hokonui Rūnanga to provide an update as to progress with the MoU.

Policy 3: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.

Policy 5: Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.

Information from the LAWA (Land, Air, Water Aotearoa) website indicates that the Mataura River in a significantly degraded state as a result of the cumulative effects of diffuse and point source contaminant discharges to the river being in:

- the worst 25% of all lowland rural sites in New Zealand for E.coli, Clarity (black disc), Total Nitrogen, Total Oxidised Nitrogen, Ammoniacal Nitrogen;
- the worst 50% of all lowland rural sites for Total Phosphorous; and
- the best 50% of all lowland rural sites for Dissolved Reactive Phosphorus.

Catchment wide improvements are therefore required to address this degradation. In respect of this application, I consider:

- If the discharge applications are to be approved, then the discharge should be improved to the extent practicable as soon as feasible, rather than wait for wider catchment improvements to eventuate;
- The consent should enable further improvement in the future, in line with wide catchment management associated with the Mataura FMU and the National Objectives Framework.

Policy 7: The loss of river extent and values is avoided to the extent practicable.

The Panel will appreciate, the use of the term 'avoid' within a national planning instrument creates a 'high bar' in respect of planning interpretation and application. However, in this policy, '*avoid*' is not absolute, but is modified by the term 'to the extent practicable', which indicates there are circumstances where avoidance is not mandatory. Legal advice on the application of this policy was sought[43]. This advised:

> *Policy 7 of the NPSFM requires that "The loss of river extent and values is avoided to the extent practicable."*

[43] Attachment 11: Memorandum from WynnWilliams, 6 November 2020

Clause 3.24 directs the Council to insert the following policy (or words to the same effect) into its regional plans:

The loss of river extent and values is avoided, unless the council is satisfied:

(a) that there is a functional need for the activity in that location; and

(b) the effects of the activity are managed by applying the effects management hierarchy.

Both Policy 7 and clause 3.24 (both now and when the policy is included in the Council's regional plans) will be relevant policy considerations in resource consent applications for activities that may affect river extent or values.

In our opinion, Policy 7 should not be read as providing a gloss on the avoid direction in clause 3.24 (i.e. that the avoid direction in clause 3.24 can be ignored where avoidance is not practicable). Clause 3.24 appears to be intended to implement Policy 7 of the NPSFM. In doing so, it particularises Policy 7 by identifying when it may not be practicable to avoid the loss of river extent or values. In particular, the policy in clause 3.24 provides criteria that outline when the loss of river extent or values need not be avoided:

a. where there is a functional need for the activity in that location; and

b. where the effects of the activity are managed by applying the effects management hierarchy.

The effects management hierarchy is defined in clause 3.21 and its first step is to avoid adverse effects where practicable. The effects management hierarchy goes on to require that effects be minimised, remedied, offset or compensated.

I concur with this advice. In my opinion, the inclusion of the term '*to the extent practicable'* in Policy 7 does not mean that effects must be avoided unless it is impracticable to do so. Rather, the scope of what is 'practicable' is defined within the regional plan policies directed by Clause 3.24. In this regard, I consider that Policy 7 is inherently linked to the policies required to be inserted into the Regional Plan by Clause 3.24 of the NPS FM. Accordingly, I discuss the issue of loss of value and to the extent practicable in more detail in my assessment of those policies in Section 3.8.2 below. This includes legal advice obtained on the application of those policies.

In respect of these applications, there is no loss of river extent[44]. In respect of values however, as the application is to be considered as if it did not currently exist, it is clear that the discharges and weir structure are likely to result in some loss of values including cultural values, water quality/human contact and potentially mahinga kai[45] – particularly until such time as the proposed Plant upgrades are implemented. Conversely, the discharge contributes to 'Commercial and industrial use' values and the weir contributes to "Hydro-electric power generation' values[46].

[44] I have applied the common meaning of 'extent' to be "the area covered by something", which in this case applies to any loss of river extent.

[45] Human contact and Mahinga Kai are compulsory values under the NPS FM

[46] These are 'Other values that must be considered' under the NPS FM

Policy 8: The significant values of outstanding water bodies are protected.

The significant values of the Mataura River are protected by the Mataura WCO. As I have indicated previously, I consider that the Mataura WCO does not preclude the applications from being granted.

If the applications are approved, the discharge will continue to contribute to nutrient loads to, and cumulative effects on, the Toetoes Estuary, which is a RAMSAR site. Again, in my opinion, this policy reinforces the need to implement the proposed treatment improvements as soon as is practicable to reduce any potential effects on this important estuary.

Policy 9: The habitats of indigenous freshwater species are protected.

Policy 10: The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.

Based on my discussion above, I conclude that the discharge is unlikely to affect habitats of indigenous species and trout and salmon. Additionally, the weir does not appear to be affecting trout and salmon populations up and downstream. However, it may affect the upstream passage of some fish species.

As I have advised above, I consider the weir to form part of the existing environment, for the term of its current consents.

Policy 12: The national target (as set out in Appendix 3) for water quality improvement is achieved.

The discharge includes a significant level of *E.coli* that significantly increases concentrations downstream of the discharge and affects water quality for human health/contact. However, following the implementation of UC disinfection and biological treatment, the discharge is expected to be better (in terms of microbial concentrations) than upstream water quality in the river.

In my opinion this means that provided that the improvements are expedited, the discharge can be consistent with this policy.

Policy 15: Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.

I have discussed the social and economic benefits of the proposal, and cultural impacts above. However, I note that the use of water (including discharges to water) is a lower priority than the health and well-being of water bodies and freshwater ecosystems.

3.6.2 **NZCPS (2010)**

The NZCPS is relevant to the extent that discharges from the site, in combination with other catchment sources, have the potential to adversely affect the ToeToes Estuary, which is part of the wider Awarua Wetland complex. As is discussed above, this estuary is identified as being in a "moderate" but declining condition in relation to eutrophication.

Objective 1 of the NZCPS seeks:

To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by: ….

- *protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna;*

Policy 21: Enhancement of water quality, seeks:

Where the quality of water in the coastal environment has deteriorated so that it is having a significant adverse effect on ecosystems, natural habitats, or water-based recreational activities, or is restricting existing uses, such as aquaculture, shellfish gathering, and cultural activities, give priority to improving that quality by…:

(c) where practicable, restoring water quality to at least a state that can support such activities and ecosystems and natural habitats;

The discharge may also contribute to potential impacts on the natural character of the Toetoes Estuary, should it decline to a state where natural character is substantially affected.

Assessment

I acknowledge that the Plant discharge only contributes a small proportion of the nutrient load to the Toetoes Estuary (1 – 2%). However, this needs to be considered in the context of a very large (5,400 km^2) catchment. The Applicant proposes a biological treatment system, to be implemented by year 15 of the consent and nutrient loads will not be reduced until this upgrade is implemented. All submitters support the implementation of this treatment system to reduce nutrient loads, but submitters in opposition seek that the timeframe for implementation to be reduced to achieve a reduction in nutrient loads to the river and estuary sooner.

In my opinion, the importance of the downstream estuary, and its current declining state, support expediting the proposed upgrades – particularly full biological treatment.

3.7 Southland Regional Policy Statement

The Southland Regional Policy Statement, 2017 (RPS) became operative on 9 October 2017. My assessment of the applications in respect of the key provisions is provided below.

3.7.1 **Chapter 3: Tangata Whenua**

This chapter identifies the relevant organisations representing tangata whenua are in the Southland region and sets out the resource management issues of significance to Ngāi Tahu and the objectives, policies and methods to resolve those issues, and achieve outcomes consistent with those desired by Ngāi Tahu.

Objectives TW.1 and TW.2 direct that the principles of the Treaty of Waitangi should be taken into account in partnership with tangata whenua and direct that decisions into account iwi management plans.

Objective TW.3 Tangata whenua spiritual values and customary resources is of specific relevance to these applications, given the use of the river for mahinga kai, and seeks that:

'Mauri and wairua are sustained or improved where degraded, and mahinga kai and customary resources are healthy, abundant and accessible to tangata whenua'.

Policy TW.4 – Decision making, directs that:

When making resource management decisions, ensure that local authority functions and powers are exercised in a manner that:

(a) recognises and provides for:

(i) traditional Māori uses and practices relating to natural resources (e.g. mātaitai, kaitiakitanga, manaakitanga, matauranga, rāhui, wāhi tapu, taonga raranga);

(ii) the ahi kā (manawhenua) relationship of tangata whenua with and their role as kaitiaki of natural resources;

(iii) mahinga kai and access to areas of natural resources used for customary purposes;

(iv) mauri and wairua of natural resources;

(v) places, sites and areas with significant spiritual or cultural historic heritage value to tangata whenua;

(vi) Māori environmental health and cultural wellbeing.

(b) recognises that only tangata whenua can identify their relationship and that of their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga.

Assessment

Of particular relevance to this application are the potential effects on mahinga kai, the mauri and wairua of the river environmental health and cultural wellbeing. The cultural impact assessments and submissions from Tangata Whenua indicate that both the historical development of the weir and the on-going discharge of wastewater to the river are culturally offensive and may affect fish species including kanakana and tuna, and the wider health of the river.

Potential adverse effects may be able to be mitigated to some extent, and cultural values better recognised and provided for, and this has been the subject of discussions between the Applicant and Hokonui Rūnanga. As I have stated previously, it would be beneficial for the Applicant and Hokonui Rūnanga to advise progress with the discussions to better understand the extent to which this has been achieved.

3.7.2 **Chapter 4A – Water Quality**

Relevant objectives and policies relating to water quality are provided below.

Objective WQUAL.1 - Water quality goals

Water quality in the region:

(a) safeguards the life-supporting capacity of water and related ecosystems;

(b) safeguards the health of people and communities;

(c) is maintained, or improved in accordance with freshwater objectives formulated under the National Policy Statement for Freshwater Management 2014;

(d) is managed to meet the reasonably foreseeable social, economic and cultural needs of future generations

Objective WQUAL.2 – Lowland water bodies

Halt the decline, and improve water quality in lowland water bodies and coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands in accordance with freshwater objectives formulated in accordance with the National Policy Statement for Freshwater Management 2014.

Policy WQUAL.2 – All waterbodies

Maintain or improve water quality, having particular regard to the following contaminants:

(a) nitrogen;

(b) phosphorus;

(c) sediment;

(d) microbiological contaminants.

Policy WQUAL.4 – Awarua Wetland

Enhance the water quality of the Awarua Wetland by ensuring that discharges of contaminants and land use activities both individually and on a cumulative basis have no more than minor adverse effects on the significant characteristics and water quality of the Awarua Wetland.

Policy WQUAL.7 – Social, economic and cultural benefits

Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of water resources.

Policy WQUAL.8 – Preference for discharge to land

Prefer discharges of contaminants to land over discharges of contaminants to water, where:

(a) a discharge to land is practicable;

(b) the adverse effects associated with a discharge to land are less than a discharge to water.

Policy WQUAL.9 – Untreated human and animal wastes

Avoid the direct discharge of sewage, wastewater, industrial and trade waste and agricultural effluent to water unless these discharges have undergone treatment.

Assessment

Objective and Policy WQUAL.1 seek to maintain or improve water quality, particularly in relation to nutrients, suspended sediment and microbial contaminants. I note that these provisions do not necessarily seek improvement – indicating that whether water quality is required to be maintained or improved will be determined through the NPS FM processes.

Objective WQUAL.2 and Policy WQUAL.4 seek to halt the decline, and improve water quality in, lowland rivers and estuaries and to enhance the water quality of the Awarua Wetland. The discharge will inevitably increase concentrations and loads of some contaminants and contribute to cumulative effects. However, concentrations and loads can be substantially reduced through the proposed treatment improvements.

Advice from Dr Wilson is that once the reductions have been achieved, the wastewater discharge is unlikely to have a notable effect on downstream water quality and the contribution to cumulative effects will be substantially reduced. Further reductions, including alternative discharge options, may be appropriate and required once the NPS FM objectives and limits have been determined and are in place, in accordance with the FMU/NOFprocess.

The social and economic benefits of the activity (WQUAL.7) have been documented in the application; however, the weir and discharge to the river continue to be offensive to Tangata Whenua.

Policy WQUAL.8 indicates a preference for discharges of contaminants to land over discharges of contaminants to water, where this is practicable and the adverse effects are less. Ms Andrew agrees[47] that options for land disposal (full or partial) are limited and may be deemed not the best practicable option. However, she considers that Alliance should keep a watching brief on newer technologies that may allow them to reduce or remove the discharge to the river, and that flexibility should be provided in the consent conditions to reflect this. That is, that alternative treatment and discharge options should 'still be on the table'.

In this regard, if the consent is approved, I consider it should be subject to a term and/or conditions that do not preclude consideration of a future alternative treatment and disposal options to facilitate the outcomes of the Mataura River FMU/NOF process to be implemented. I understand from the prehearing meeting that land disposal would require a similar level of biological treatment (if not more) than is currently proposed for the river discharge. Accordingly, the proposed UV and biological treatment that is proposed may not preclude a future land discharge option and is not a 'wasted investment' should some form of land disposal ultimately be determined to be viable.

3.7.3 **Chapter 4B – Water Quantity**

The section of the RPS includes objectives that seek the sustainable management of the region's water resources and the efficient allocation and use of water.

Polices to achieve the objectives include the following.

Policy WQUAN.1 – Instream values

Maintain instream values of surface water that derive from flows and levels of water, while recognising the special circumstances of the Waiau catchment.

Policy WQUAN.6 – Efficient use of water

(a) Ensure that any water taken from surface water or groundwater is used efficiently.

(b) Where fresh water bodies are approaching full allocation, consider establishing management provisions to maximise the efficiency of using any available water.

Policy WQUAN.7 – Social, economic and cultural benefits

Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of water resources.

Assessment

The flow regime in the river is managed in accordance with the Mataura WCO. As the cooling water take is 'non-consumptive' in my opinion, it does not affect water flows in the river (other than the section between the weir and the hydro-race discharge). While I conclude that the water take for processing is

[47] Ms Andrew's evidence, para 30

consumptive, this water is returned to the river (albeit as process wastewater) such that the flow is unlikely to be materially affected downstream of the discharge.

The diversion of water by the weir results in less flow down the main river, for the distance of the diversion and discharge from the two hydro-races. This is provided for in the Mataura WCO, provided that the necessary minimum flow across the weir is retained.

The Applications include proposed conditions requiring the assessment of water use and opportunities to reduce this through efficiency and water reuse (where possible). I consider this to be consistent with these policies in respect of efficient use. However, I understand that a reduction in water use in the Plant may have implications for the quality of the discharge that has yet to be fully assessed. Given that the takes are unlikely to materially affect river flows, I consider that water use reduction should only occur where it is clearly demonstrated that it does not adversely affect discharge quality.

3.7.4 **Chapter 4C – Beds of lakes and River**

Objective BRL.1 – Lake and river bed values

All significant values of lakes and rivers are maintained and enhanced.

Policy BRL.2 – Existing uses of lake and river beds

Lawfully established structures and activities in the beds of lakes and rivers will be recognised, including the need for maintenance, enhancement and upgrading, while avoiding wherever practicable, mitigating or remedying, any adverse effects. Where the use, maintenance, enhancement and upgrading of such structures will have no more than minor adverse effects on the environment, these activities will be specifically provided for.

Policy BRL.5 – Social, economic and cultural benefits

Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of river and lake beds.

Assessment

The Mataura WCO was established in 1997 to protect the outstanding features of the Mataura River, including '*outstanding fisheries and angling amenity features*'. The weir was established some 70 to 80 years prior to the Mataura WCO being gazetted, such that the outstanding features that are protected exist in the context of the weir structure and associated damming and diversion.

Policy BRL.2 indicates that existing structures, and the social and economic benefits, should be recognised. I note however, that the weir structure remains of concern to Tangata Whenua.

As I have previously advised, I consider that the weir should be considered as part of the 'existing environment' for the duration of its existing resource consents.

3.7.5 **Chapter 6 – Biodiversity**

Objective BIO.2 – Maintain and protect

Maintain indigenous biodiversity in Southland and protect areas of significant indigenous vegetation and significant habitats of indigenous fauna for present and future generations.

Policy BIO.2 – Protect significant areas

Areas of significant indigenous vegetation and significant habitats of indigenous fauna in the Southland region will be protected and, where appropriate, enhanced.

Policy BIO.4 – Maintain indigenous biodiversity

Manage a full range of indigenous habitats and ecosystems to achieve a healthy functioning state, and to ensure viable and diverse populations of native species are maintained, while making appropriate provisions for lawful maintenance and operation of existing activities.

3.7.6 **Chapter 7 - Coast**

Objective COAST.3 – Coastal water quality and ecosystems

Coastal water quality and ecosystems are maintained or enhanced.

Assessment (Biodiversity and Coast)

As confirmed by the 4Sight Water Quality and Ecology Review, there appears to be no notable adverse effects of the discharge on biological communities in the river. Improvements in the quality of the discharge will likely reduce any existing effects below any that currently occur, but these are likely to be minimal in the context of the wider catchment improvements required to substantially improve ecological outcomes.

The discharge contributes a small percentage, but disproportionally large (in the context of the scale of the catchment), nutrient load to the Toetoes Estuary and contributes to cumulative effects described by Dr Wilson as moderate. The implementation of the proposed biological treatment system will substantially reduce existing loads in the discharge once it is implemented. However, given that the significant proportion of the nutrient load comes from other sources, noticeable enhancement of the health of the estuary will require 'whole of catchment' improvement.

3.8 Regional Water Plan for Southland (2010)

The Regional Water Plan for Southland was made partially operative in January 2010 and fully operative in April 2010. In respect of the Mataura River:

- The Toetoes Bay Beach/Spit is identified as a coastal wetland that is a rare coastal habitat type;
- The waters of the river at the site are classified as Mataura 3;
- The Mataura River at Mataura Bridge is identified as a Popular Bathing site.

Key provisions are provided and assessed below.

3.8.1 **Water Quality Objectives (5.1.1) and Policies (5.2.1)**

Objective 2 – Maintain water quality

To manage water quality so that there is no reduction in the quality of the water in any surface water body, beyond the zone of reasonable mixing for discharges, below that of the date this Plan became operative (January 2010).

Objective 3 – Surface water bodies other than in Natural State Waters

To maintain and enhance the quality of surface water bodies so that the following values are protected where water quality is already suitable for them, and where water quality is currently not suitable, measurable progress is achieved towards making it suitable for them.

In surface water bodies classified as … Mataura 3:

(a) bathing, in those sites where bathing is popular;

(b) trout where present, otherwise native fish;

(c) stock drinking water;

(d) Ngāi Tahu cultural values, including mahinga kai;

(e) natural character including aesthetics.

Assessment

Objective 2 is likely to be met as the Plant has implemented improvements that have reduced contaminants loads since January 2010. That is, the quality of the Mataura River is likely to be unchanged or better than as at January 2010. This is generally confirmed in the State of the Environment Monitoring Review[48], which indicates an improvement in most parameters. Proposed future reductions in loads will further improve water quality above this benchmark.

I address the Mataura 3 water standards in more detail below.

Policy A4 of the National Policy Statement for Freshwater Management 2014

1. *When considering any application for a discharge the consent authority must have regard to the following matters:*
    a. *the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and*
    b. *the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.*
2. *When considering any application for a discharge the consent authority must have regard to the following matters:*
    a. *the extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and communities as affected by their secondary contact with fresh water; and*
    b. *the extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided.*
3. *This policy applies to the following discharges (including a diffuse discharge by any person or animal):*
    a. *a new discharge or*

[48] Included as Attachment 7C

b. a change or increase in any discharge –

of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.

Assessment

Legal advice was sought as to whether this policy applies to the discharge application as it is a renewal of existing discharge consents and hence not a 'new' discharge. This advice[49] confirmed that these policies apply as a change in the discharge has been sought, both in terms of volume and ultimately the quality of the discharge – notwithstanding that both of these represent a 'reduction' over the existing discharge – both volume and quality.

In respect of these policies:

- As indicated previously, there appears to be no notable adverse effects of the discharge on biological communities.
- The Applicant advises that the risk to human health associated with the discharge is low. Dr Poore advises that the level of microbial contamination in the Mataura River from the discharge of animal wastewater from the Mataura Plant is of a level that it creates a significant risk to the health of people who may use the water for contact recreation. Dr Poore advocates a more cautious approach and recommends the timing of the proposed UV treatment, which will substantially reduce *E.coli* concentrations in the discharge to levels that are similar to those in the river, be brought forward. Accordingly, I conclude that the likely effect on human health appears to be more than minor until such time as UV disinfection is applied, and potentially less than minor beyond that point.

3.8.2 NPS FM Policies

The NPS FM requires the following policies to be inserted into regional plans – both operative and proposed. Accordingly, I assess these policies here. As previously advised, I consider these policies to have full effect.

3.24: Rivers

(1) Every regional council must include the following policy (or words to the same effect) in its regional plan(s):

The loss of river extent and values is avoided, unless the council is satisfied:

(a) that there is a functional need for the activity in that location; and

(b) the effects of the activity are managed by applying the effects management hierarchy.

(2) Subclause (3) applies to an application for a consent for an activity:

(a) that falls within the exception to the policy described in subclause (1); and

(b) would result (directly or indirectly) in the loss of extent or values of a river.

[49] Attachment 11: memorandum from WynnWilliams, 23 October 2020

(3) Every regional council must make or change its regional plan(s) to ensure that an application referred to in subclause (2) is not granted unless:

(a) the council is satisfied that the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity; and

(b) any consent granted is subject to conditions that apply the effects management hierarchy.

3.26: Fish passage

(1) Every regional council must include the following fish passage objective (or words to the same effect) in its regional plan(s):

The passage of fish is maintained, or is improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats.

(2) Every regional council must make or change its regional plan(s) to include policies that:

(a) identify the desired fish species, and their relevant life stages, for which instream structures must provide passage; and

(b) identify the undesirable fish species whose passage can or should be prevented; and

(c) identify rivers and receiving environments where desired fish species have been identified; and

(d) identify rivers and receiving environments where fish passage for undesirable fish species is to be impeded in order to manage their adverse effects on fish populations upstream or downstream of any barrier.

(4) Every regional council must make or change its regional plan(s) to require that regard is had to at least the following when considering an application for a consent relating to an instream structure:

(a) the extent to which it provides, and will continue to provide for the foreseeable life of the structure, for the fish passage objective in subclause (1)

(b) the extent to which it does not cause a greater impediment to fish movements than occurs in adjoining river reaches and receiving environments

(c) the extent to which it provides efficient and safe passage for fish, other than undesirable fish species, at all their life stages

(d) the extent to which it provides the physical and hydraulic conditions necessary for the passage of fish

(e) any proposed monitoring and maintenance plan for ensuring that the structure meets the fish passage objective in subclause (1) for fish now and in the future.

(5) Every regional council must make or change its regional plan(s) to promote the remediation of existing structures and the provision of fish passage (other than for undesirable fish species) where practicable.

Legal advice was sought to assist in interpreting these policies, in particular whether the avoidance of the loss of river values applies to discharge activities. The advice[50] concluded that:

> *"The NPSFM is a regulation as defined in the Interpretation Act 1999 and is therefore subject to that Act. Section 5 of the Interpretation Act 1999 provides that the meaning of an enactment must be ascertained from its text and in light of its purpose. For the NPSFM, the purpose is expressed in:*
>
> *a. the fundamental concept of the NPSFM – Te Mana o te Wai;*
>
> *b. the objective;*
>
> *c. the policies; and*
>
> *d. the scheme and arrangement of the NPSFM.*
>
> *In our opinion, text of the policy required by clause 3.24 is broad. It requires that the loss of river extent and values is avoided (unless certain criteria are met). The policy's application is not explicitly limited to only certain activities (e.g. reclamation, drainage or in-stream structures). The definition of "loss of values" in relation to rivers is similarly broad and is not limited to certain activities.*
>
> *The fundamental concept, objective and relevant policies of the NPSFM are all targeted at ensuring the health and well-being of water bodies are prioritised and protected. The NPSFM also directs that freshwater is managed in an integrated way.*
>
> *We acknowledge, however, that the section 32 report for the NPSFM and the regulatory impact statement focuses on the costs of piping, diversion and reclamation activities when assessing Policy 7 of the NPSFM (which clause 3.24 implements). However, in our opinion, the NPSFM must be interpreted applying the principles outlined above, rather than by reference to the costs assessed in the section 32 report and other background documents.*
>
> *In our opinion, in the absence of clear guidance or case law, the best interpretation of the policy in clause 3.24 is that it applies to all activities that may adversely affect the extent and values of rivers, including discharges as well as reclamation, drainage and in-stream structures. We consider that a narrower interpretation (i.e. that clause 3.24 applies only to physical changes to rivers) requires a strained reading of clause 3.24 and the definition of "loss of values".*

In terms of the term 'avoid' the advice concluded:

> *"The leading case on the meaning of "avoid" in policy documents and plans is Environmental Defence Society Inc v New Zealand King Salmon Company Ltd. In that case, in the context of the NZCPS the Court found that "avoid" has its ordinary meaning of "not allow" or "prevent the occurrence of".*
>
> *The Supreme Court came to this conclusion, taking into account the juxtaposition of "mitigate" and "remedy" as they are used in the relevant NZCPS policies. We consider that this is the appropriate meaning to attach to "avoid" where it is used in clause 3.24, given the contextual similarities: the*

[50] Attachment 11: Memorandum from WynnWilliams, 6 November 2020

ability to remedy and/or mitigate effects is also relevant in the context of clause 3.24 through the effects management hierarchy.

The policy in clause 3.24 requires that "The loss of river extent and values is avoided, unless the council is satisfied …" that particular criteria are met. If the criteria are not met, the loss of river extent or values should not be allowed, or should be prevented.

Importantly, the matter that must be avoided is the loss of extent and values, not any adverse effects on a river per se (in contrast to Policies 11, 13 and 15 of the NZCPS). This requires contextualisation of the existing and potential values of the river and assessment of whether the river will be less able to provide for those values.

As set out above, where there is a directive policy to avoid something, that policy will prevail over any less directive policies. Depending on the proposal, this may mean that it is appropriate to impose conditions or decline a resource consent application to ensure that the proposal would not render the river less able to provide for those values."

Assessment: 3.24: Rivers

As I have previously advised, Policy 3.24: Rivers is linked to Policy 7 of the NPS FM and seeks to avoid the loss of extent and values of rivers unless there is a functional need for the activity and effects are managed by the effects mitigation hierarchy. I consider that the latter two exclusions to the 'avoid' policy are intended to reflect what is meant by 'to the extent practicable' in Policy 7.

I concur with the legal advice that Policy 3.24 (1), as written, should be interpreted as applying to all activities that may adversely affect the extent and values of rivers. In terms of 'loss of value', in my opinion this does not mean that there cannot be any adverse effect (such as reduced water quality) – but rather that any adverse effect cannot be of a magnitude that will result in a loss of values.

On the basis that the discharge application is assessed as if it currently does not exist, the applications will give rise to adverse effects on some values – in particular cultural values, water quality/human health/contact and a contribution to cumulative effects until such time as the upgrades are implemented. In my opinion, this does not result in a total loss of values (noting that many of the Mataura River's significant values exist under the current discharge and diversion regime and are protected by the Mataura WCO) but that some values are diminished to some extent. However, I note that as an existing discharge, its continuation is unlikely to further reduce values below their current state and will improve values above the current state once future Plant improvements are implemented.

I consider that if there was no loss of values, then Policy 3.24 (1) does not apply (or is met). On the basis that there is some loss of values, I now turn to the issue of whether then application meets the exclusions provided for in the policy. In this regard, I concur with the legal advice[51] that the Plant discharge is unlikely to meet a test of 'functional need'[52]. That is, the plant discharge is not functionally required to discharge to

[51] Attachment 11: Memorandum, 23 October 2020, paras 16 to 19

[52] Functional need means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment

the river, although this may not be the case if it can be demonstrated that there is no viable alternative (particularly in winter).

However, if a functional need is established, then the applications must be subject to the mitigation hierarchy, which I have presented in Section 3.6.1 above. Based on the evidence of Ms Andrew, I consider that the Applicant has assessed the practicality of avoiding adverse effects and has proposed to minimise (and remedy) effects through proposed upgrades to the Plant – albeit over a relatively long (15 year) timeframe. Should there be residual effects that are considered to be more than minor, consideration of aquatic offsetting could be applied. Therefore, should the consent be granted, conditions can be imposed to ensure this hierarchy is implemented. However, in respect of the practicalities of minimising adverse effects, the key point of contention is the timeframe over which this will occur.

In summary, I conclude that:

- The discharge of process wastewater will give rise to adverse effects that are more than minor, and result in the partial loss of some values of the river (particularly Tangata Whenua values), beyond those that would occur in the absence of the discharge.
- Adverse effects and loss of values will be reduced substantially following the implementation of the proposed treatment improvements. Hence, in my opinion, the timing of these improvements is central to whether the proposal is consistent with this policy.
- The discharge of process wastewater to the river is unlikely to meet a 'functional needs' test. However, it may do if there is clear evidence that the discharge is the only viable alternative.
- If a functional need can be established, at least for part of the discharge, the effects mitigation hierarchy can be applied. In my opinion, this would necessitate expediting the proposed Plant upgrades to the extent practicable.

3.26: Fish passage

Clause 3.26(4) details matters that a consent authority must (at a minimum) have regard to when considering an application for a consent relating to an instream structure as follows:

(a) the extent to which it provides, and will continue to provide for the foreseeable life of the structure, for the fish passage objective in subclause (1)

The weir structure appears to currently cater for the passage of some fish species that can pass the natural barrier of the Mataura Falls. Ms Bennett[53] advises:

> *The weir is recognised as a fish barrier, in addition to the natural barrier created by the Mataura Falls that are a short distance below the weir. The falls are naturally diverse in features and despite being a significant barrier maintain some diversity of flows and opportunities for climbing fish to surpass. In contrast, the weir is very uniform in design with laminar flows over the face. Consistent laminar flows*

[53] Evidence of Ms Bennett, para 50

and high velocities at the weir face limit opportunities for climbing fish to surpass the obstacle. Nonetheless, there are indicators that some upstream fish migration past the weir is occurring.

It is reasonable to assume the existing fish passage can continue for the life of the structure.

(b) the extent to which it does not cause a greater impediment to fish movements than occurs in adjoining river reaches and receiving environments

As per the quote from Ms Bennett's evidence above, the weir is likely to limit the passage of some fish that are able to traverse the falls due to its design and laminar flow. Ms Bennett also advises that:

A 2007 Golder Associates report[54] appended to the Alliance memo recommended 'rounding the lip' of the diversion weir top to remove the 90^{o} angle, as a simple means of improving the ability for longfin eel elvers to climb the weir. Such a change may also assist lamprey (kanakana), which also have difficulty passing sharp (90^{o} angle) edges.

That is, it is possible to improve the passage of fish across the weir through design changes, if they have not already been undertaken.

(c) the extent to which it provides efficient and safe passage for fish, other than undesirable fish species, at all their life stages

I have addressed this above.

(d) the extent to which it provides the physical and hydraulic conditions necessary for the passage of fish

Again, this is largely addressed above. As Ms Bennett advises*: 'the weir is very uniform in design with laminar flows over the face. Consistent laminar flows and high velocities at the weir face limit opportunities for climbing fish to surpass the obstacle'.*

Lastly, I note that the weir lies above the Mataura Falls, which provide a natural barrier to some species of fish. The Applicant advises that most fish species that are able to climb the falls are able to traverse the weir, with longfin eels being the possible exception. A 'trap and transfer' regime is in place to transport longfin eels above the weir – that is, the potential effects of fish passage can be mitigated.

(e) any proposed monitoring and maintenance plan for ensuring that the structure meets the fish passage objective in subclause (1) for fish now and in the future.

This can be required by conditions of consent for the weir.

However, as I have previously advised, the weir comprises part of the existing environment for the duration of its existing consents.

[54] Golder Associates (2007)

3.8.3 Regional Plan Policies

Policy 1A – Take into account Iwi Management Plans

Any assessment of an activity covered by this plan must take into account any relevant Iwi Management Plan.

I address the provisions of Te Tangi a Tauira in Section 3.10 below.

Policy 1 – Surface water body classes

(a) Recognise the different characteristics of the following surface water body classes when managing discharges:

(x) Mataura 3

(b) Apply water quality standards established under any Water Conservation Order.

Policy 3 – No reduction in water quality

Notwithstanding any other policy or objective in this plan, allow no discharges to surface water bodies that will result in a reduction of water quality beyond the zone of reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

Policy 4 – Surface water bodies outside Natural State Waters

For surface water bodies outside Natural State Waters, manage point source and non-point source discharges to meet or exceed the water quality standards referred to in Rule 1 and specified in Appendix G "Water Quality Standards", unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so and so avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals including stock and/or aquatic life.

Appendix G: Surface water bodies Classified as "Mataura 3"

a) Any discharge is to be substantially free from suspended solids, grease and oil

b) The daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16 deg C or less, as a result of any discharge. If the natural or existing water temperature is above 16 deg C, the natural or existing water temperature shall not be exceeded by more than 1 deg C as a result of any discharge.

c) The pH of the water must be within the range 6 to 9, except when due to natural causes

d) The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours

e) There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

f) There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances

g) The natural colour and clarity of the waters must not be changed to a conspicuous extent

h) The oxygen concentration in solution in the waters must not be reduced below 5 milligrams per litre.

i) The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of Escherichia coli shall not exceed 130 E. coli per 100 millilitres.

j) Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Assessment

These provisions establish water quality standards for the Mataura River, with the relevant class for this discharge being 'Mataura 3'. Based on the technical assessments provided by the Applicant and the 4Sight Water Quality and Ecology Review, I conclude that:

- The water quality standards of the Mataura WCO are likely to be met as I have assessed above and as further discussed in the evidence of Dr Wilson. The only concern expressed by Dr Wilson relates to suspended sediment, where he advises that *'because of the elevation in TSS downstream of the discharge, it is questionable whether the discharge is substantially free from a water quality perspective.*' However, he advised that: *'there do not appear to be adverse ecological effects as a result of the TSS increase. Based on the cases cited by the legal advice sought by Environment Southland, the concentrations of TSS, oil, and grease appear to fall within the definition of 'substantially free''*. The Mataura WCO also relates to standards (a), (c), (d), (f), (g) and (h) of Appendix G.
- In respect of temperature (Appendix G (b)), the standard for Mataura 3 is more stringent than that of the Mataura WCO. However, the information provided by the Applicant[55] demonstrates that there is essentially no difference between upstream and downstream water temperatures as a result of the discharges. Dr Wilson agrees with this conclusion.
- In respect of biological growths (Appendix G (e)), the Applicant advises that '*Periphyton surveys since 2013 have shown that algal cover and biomass, whilst varied between sites and among surveys, showed no effect from the discharge but can be high upstream and downstream which along with community composition maybe affecting Macroinvertebrate Community Index and Quantitative Macroinvertebrate Community Index scores.*' Ms Bennett advises that: '*since the plant ceased processing sheep and lambs, I agree with the Applicant's assertion that there are no gross indicators of adverse impacts on aquatic communities that can be attributed to the wastewater discharge, based on the assessments undertaken to date'.*
- In relation to standard (Appendix G (j)), the discharge does not contain toxic contaminants that are likely to render fish unsuitable for consumption.
- The final standard to be addressed is that of *E.coli* in Appendix G (i). As indicated in the State of the Environment Review undertaken by Dr Wilson, this water quality standard is largely not met either with, or without the discharge – with median upstream levels (at Gore) being 350 *E.coli*/100 mL compared to the standard of 130 *E.coli*/100mL. However, it is clear that the current discharge increases downstream concentration significantly to a median concentration of 1,000 *E.coli*/100mL and results in exceedance of the standard for a large part of the time.

[55] Appendix 2 of the Application, pages 54 and 55

- Following the proposed plant upgrades, *E.coli* in the discharge will be substantially lower (1,000 times). Dr Wilson advises in his evidence that following the full implementation of the proposed improvements, the microbial quality of the discharge will be similar to, or better than, that of the upstream river.

Accordingly, I conclude that the water quality standards are able to be largely met, with the exception of *E.coli*, where the standard will not be consistently met in the absence of the discharge, and the discharge will significantly increase microbial levels further until such time as full treatment is implemented. That is, meeting the water quality standards is contingent on the proposed treatment being implemented. Once the full proposed treatment is installed, *E.coli* levels in the discharge will likely be lower than those in the receiving water. In accordance with Policy 4, this exceedance needs to be considered in the context of the promotion of the sustainable management of natural and physical resources as provided for in the Act.

Policy 7 – Prefer discharges to land

Prefer discharges to land over discharges to water where this is practicable and the effects are less adverse.

Policy 8 – Discharges to water

Prefer point source discharges of contaminants to water at times of high flow over discharges at normal or low flows, and ensure that where discharging does take place at low flows, the effects that could not be practically avoided are minimised.

Assessment

These policies state a preference to a discharge to land over one to water, where practicable, and a discharge to water at times of high flow rather than low flow. All submitters opposing the application have raised the desirability of a land-based disposal option and that cost should not be a limiting factor.

The Applicant has undertaken an assessment of land disposal and has concluded that land disposal is not practicable due to the nature of the 'gley' soils in the area, cost and other factors. The 4Sight Wastewater Review advises that a detailed consideration of seasonal land disposal had not been undertaken and is a gap in the assessment and that a 'dual' discharge, with a summer discharge to land, may be viable.

A land disposal option was the subject of additional information provided by the Applicant[56], which further detailed the constraints to a land-based option and advised[57]:

Both the 2004 assessment and the assessment undertaken by PDP as part of the resource consent application have shown that there is very little suitable land available around Mataura for the establishment of a comprehensive land discharge scheme. For the land that could be utilised, other factors including long conveyance distances and a high risk of runoff render such options to be impracticable.

[56] Attachment 6

[57] Attachment 6, PDP report page 11

Ms Andrew[58] advises that from *'their [PDP's] findings, she agrees that options for land disposal (full or partial) are limited and may be deemed not the best practicable option*'.

However, Ms Andrew also advises that the existing treatment system is not current best practice, but that *'should the wastewater discharge be approved, the proposed upgrade to the treatment system is appropriate to move towards best practice and achieve a significant reduction in nutrient and microbial contaminant loads provided that:*

a. A maximum daily limit, monthly average, and monthly and annual limits each be set to ensure that the annual discharge load does not substantially increase beyond what is currently discharged.

b. The 15-year timeframe for the treatment plant upgrade be reduced to achieve the identified benefits in a more timely manner.

c. Further investigation and consideration into technologies that could reduce or remove the need to discharge to the river should be undertaken, and flexibility should be provided in the consent conditions to reflect this if a staged upgrade is approved.'

In my opinion, Policies 7 and 8 are not directive, stating a preference for land disposal and discharges at high flows where practicable, rather than directing the circumstances where this must (or should) occur. Ms Andrew has concluded that a land-based disposal option is currently not practicable, but that further investigation and consideration of treatment options should be undertaken.

Notwithstanding this, should the applications be approved, I concur that on-going consideration of a land-based option or an alternative treatment methodology should continue to be pursued. It may be appropriate for this to be considered as part of the Mataura FMU/NOF process, noting that the Plant discharge is not the only wastewater discharge to the Mataura River.

Policy 9 – Zone of reasonable mixing

When determining the size of the zone of reasonable mixing, minimise the size of the area where the relevant water quality standards are breached. Consideration should be given to, but not be limited to, the following matters:

(a) the aquatic ecosystem values in the affected reach;

(b) the need for fish passage;

(c) the uses of the water body adjacent to and downstream of the point of discharge

Assessment

A mixing zone of 250 m is adopted in the existing discharge consent. The assessment provided by the Applicant (Appendix 04) indicates that full mixing is likely to be achieved by 100 m. However, given the limited ability to access the river, retaining the mixing zone at 250m, with the point of compliance being the Mataura River Bridge, appears appropriate.

[58] Evidence of Ms Andrew, para 30

3.8.4 Water Quantity Policies (5.2.1)

Policy B7 of the National Policy Statement for Freshwater Management 2014NPS FM

1. *When considering any application the consent authority must have regard to the following matters:*
   - *(a) the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem; and*
   - *(b) the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided.*

2. *This policy applies to:*
   - *(a) any new activity; and*
   - *(b) any change in the character, intensity or scale of any established activity –*

   that involves any taking, using, damming or diverting of fresh water or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows

Assessment

I consider that these policies have limited relevance as there is minimal, if any, proposed change to the water take and the dam/diversion is unchanged. However, importantly, the cooling water take is non-consumptive and while the water take for processing is assessed as being consumptive, the water flow is returned to the river downstream

In respect of the take, the consented volume that is sought is reduced from the previous consent and the proposed water efficiency assessment may result in a further reduction in water requirements.

Policy 14 – Manage the taking, use, damming or diversion of surface water

While recognising the positive effects resulting from the use and development of water resources, manage the taking, use, damming or diversion of surface water so as to avoid where practicable, remedy or mitigate significant adverse effects on:

- *(a) the quality and quantity of aquatic habitat;*
- *(b) natural character, natural features, and amenity, aesthetic and landscape values;*
- *(c) areas of significant indigenous vegetation and significant habitats of indigenous fauna;*
- *(d) recreational values;*
- *(e) the spiritual and cultural values and beliefs of the tangata whenua;*
- *(f) water quality, including temperature;*
- *(g) the rights of lawful existing users;*
- *(h) groundwater quality and quantity;*

Policy 15 – Surface water abstraction, damming, diversion and use

- *(a) Use a staged management approach to allocate surface water for abstraction, damming, diversion and use in Southland to allow the knowledge gained by the progressive development of the region's surface water resources to be built into its future management.*

(b) Recognise the different characteristics of the following surface water management units when managing surface water quantity:

(v) Mataura

(c) Apply allocation and minimum flow and level regimes established under any Water Conservation Order

Policy 16 – Environmental flow and level regimes

(a) When granting resource consents for surface water abstraction, damming, diversion and use, the Council where appropriate will apply by way of consent conditions environmental flow and level regimes established under:

(ii) any Water Conservation Order;

Assessment

In my opinion, the flow regime is managed in accordance with the Mataura WCO to protect the significant values of the river and there are limited, if any, effects of the takes on river flows.

In respect of the damming and diversion of water, I have previously advised that I consider this to be part of the 'existing environment' until the expiry of the existing consents for this activity. Should the duration of the consents be extended beyond their existing term, then the matters in relation to fish passage will need to be considered.

Policy 14A– Determining the term of a water permit

To determine the term of a water permit consideration will be given, but not limited, to:

(a) the degree of certainty regarding the nature, scale, duration and frequency of adverse effects from the activity;

(b) the level of knowledge of the resource;

(c) relevant tangata whenua values

(d) the allocation sought, particularly the proportion of the resource sought;

(e) the duration sought by the applicant, plus material to support the duration sought;

(f) the permanence and economic life of the activity;

(g) capital investment in the activity;

(h) monitoring and review requirement in permit conditions;

(i) the desirability of applying a common expiry date for water permits that allocate water from the same resource; and

(j) the applicant's compliance with the conditions of the previous permit (where a new water permit is sought for a previously authorised activity).

Assessment

The Applicant has sought a 35-year consent term for all replacement consents being sought, primarily in recognition of:

- the significant existing investment in the Plant;

- the future investment that it is intending to commit to in respect of the proposed wastewater treatment plant upgrades;
- the significant social and economic benefits the Plant provides in the local area and greater certainty those benefits will endure.

The term of consent is a significant issue that has been raised in all of the submissions, both in support and opposition, and a key consideration for the Panel to consider. Given this, I address each subclause in Table 3 below.

Table 3: Assessment of Term

Criteria	Assessment
The degree of certainty regarding the nature, scale, duration and frequency of adverse effects from the activity	The activity has been operating for some time and it is reasonable to assume that the nature, scale (etc) of adverse effects are likely to be similar to those occur now until the proposed upgrades, which will then reduce adverse effects. I note that the discharge does give rise to adverse effects that are more than minor on cultural values, public health/contact and cumulative effects.
The level of knowledge of the resource	The effects on river appear well understood and monitored, with some gaps in knowledge relating to kanakana populations and adverse effects within the mixing zone. There are also gaps in respect of impact of fish passage, particularly across the weir, which are relevant should an extended term be granted.
Relevant tangata whenua values	The discharge and weir are offensive to tangata whenua and general contrary to tangata whenua values and policies. Given the discussions that have occurred between the Applicant and Hokonui Rūnanga, these effects may be able to be mitigated to an extent – but this needs to be confirmed.
The allocation sought, particularly the proportion of the resource sought	The proportion of water allocation rate sought is low (largely non-consumptive).
The duration sought by the applicant, plus material to support the duration sought	The Applicant seeks a 35 year term supported by information on effects, upgrades, reviews etc.
The permanence and economic life of the activity	While not permanent, the activity has been on the site for a considerable period of time and is an important component of Southland's farming industry. I consider it is reasonable to assume that it is likely to be part of the community well into the future.
Capital investment in the activity	The capital value of the Plant is significant and further investment in upgrading the Plant and discharge are proposed.

Monitoring and review requirement in permit conditions	The existing consent is subject to a wide range of monitoring and significant monitoring is proposed in the EMP. This monitoring is supported by Dr Wilson. Review conditions can be imposed to enable review of the discharge standards, including in light of the future Mataura FMU outcomes.
The desirability of applying a common expiry date for water permits that allocate water from the same resource	This is particularly relevant to consents for the weir, which predominantly diverts water for take and use in hydro-generation. The generation is subject to its own resource consents. I address this below
The Applicant's compliance with the conditions of the previous permit (where a new water permit is sought for a previously authorised activity)	The Applicant's assessment indicates a high level of compliance.

While not included in the list above, I consider the Te Tangi a Tauira Iwi Management Plan is also relevant to the consideration of term. In this plan (3.5.2 - Wastewater disposal), Policy 18 states:

18. *Recommend a duration not exceeding 25 years, for discharge consents relating to wastewater disposal, with an assumption that upon expiry (if not before), the quality of the system will be improved as technological improvements become available. In some instances, a lesser term may be appropriate, with a condition requiring the system is upgraded within a specified time period.*

Further, I consider that an additional key factor in respect of term is the integration with the outcomes of the NOF process under the NPS FM. I consider that the new NPS FM has significantly 'raised the bar' in respect of expectations for giving effect to Te Mana o Te Wai, improving degraded water quality and the halting the loss of values of rivers and wetland and associated values. In this context, the term and conditions of a major discharge consent such as this should not affect the ability to implement the NPS FM NOF outcomes.

Accordingly, while the applicant has sought a 35 year term, there are several matters that I consider direct a substantially shorter term:

- The effects on iwi cultural values associated with a direct discharge of treated wastewater to a river and whether this can be replaced by alternative treatment and disposal options;
- Potential effects on human health/contact and the contribution of the discharge to cumulative effects, including on the downstream Toetoes Estuary – although these can be mitigated tosome extent;
- The guidance provided by the Te Tangi a Tauira Iwi Management Plan;
- Ensuring that the term does not preclude or frustrate the implementation of the NPS FM NOF outcomes for the Mataura FMU; and
- The desirability of consistency for the Weir Applications with the consent terms for the Alliance and MIE hydro-generation plants – given that they are inherently linked.

In respect of the last point, I consider this to be significant in the term for the weir consents. Alliance's resource consent for the damming and diversion, use and discharge of water for hydro-generation (AUTH-20171566-01 AUTH-20171566-02) were granted in February 2019 for a period of approximately seven and

a half years until 7 November 2026 – a period selected to coincide with the expiry of (AUTH-203311 – MIE dam/diversion) so that resource consents for the damming/diversions on either side of the weir be considered together in future.

I agree with this approach and note that if granted for a longer period, the Applicant's dam/divert consents will 'leap-frog' its consents for the take and use of water for hydro-generation – further confusing this matter. I agree with MS Bennett in that the damming and diversion are more aligned to the hydro-generation activities and hence a common term with these consents is more desirable than a common term with the take and discharge consents. I also note that this was a concern raised by the Hearing Commissioner (Dr Rob Lieffering) in the recent (2019) decision on the existing consents for the weir (AUTH-20171566-01 AUTH-20171566-02) that led to a short term consent being granted for the damming and diversion, and the hydro-scheme.

These matters, particularly integration with the NPS FM NOF process, have been central to my recommendations on term in Section 4 of my report.

Policy 23 – Review of water permits

Impose a condition enabling the review of consent conditions in accordance with Sections 128 and 129 of the Resource Management Act 1991 on all new permits to take and use water.

Assessment

This can be addressed through appropriate conditions of consent.

3.8.5 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Objectives (5.1.4) and Policies (5.2.4)

Objective 10 – Habitats and ecosystems

To maintain or enhance the diversity and integrity of aquatic and riverine habitats and ecosystems.

Policy 32 – Manage structures and bed disturbance activities in the beds of rivers (including streams and modified watercourses) and lakes

Manage structures and bed disturbance activities in the beds of rivers and lakes, to avoid, remedy or mitigate adverse effects on:

(a) water quality and quantity;

(b) habitats, ecosystems and fish passage where this is normally expected to occur;

(c) indigenous biological diversity;

(d) historic heritage, and the spiritual and cultural values and beliefs of the tangata whenua;

(e) public access (except in circumstances where public health and safety are at risk) and amenity values;

(f) natural character and outstanding natural features;

(g) river morphology and dynamics, including erosion and sedimentation;

(h) flood risk;

(i) infrastructural assets;

(j) navigational safety.

Assessment

Policy 32 is relevant for the weir consents, particularly in respect of fish passage. However, as I have advised previously, the damming and diversion is part of the existing environment for the duration of the existing consents and in my opinion the use of the weir is integrally aligned to these activities.

Should a term exceeding that of the current consents be granted, then consideration should be given to mitigating fish passage across the weir, as discussed in the evidence of Ms Bennett.

3.9 Proposed Southland Water and Land Plan 2018

The PSWLP decisions version was released in April 2018 and a significant number of the plan provisions are subject to appeals that have yet to be resolved. These carry lesser weight that those that are operative by virtue of being past challenge. Provisions subject to appeal are shaded below. I advise that some of the provisions have been the subject of an interim decision by the Environment Court[59].

Where relevant, I have also included the Environment Court's interim decision version. These have been sourced from the Fourth Interim Decision of the Environment Court, dated 6 November 2020.

Further, I note that there is a reasonable overlap between many of the policies of the Operative and Proposed Plans, accordingly I have generally not repeated my assessment unless it is necessary to do so. In this regard, I do not repeat my assessment of the policies inserted by the NPS FM.

In respect of the Mataura River:

- The Awarua Plains – Southland Estuaries (including Fortrose Harbour/Lower Mataura River) are identified as Regionally Significant Wetlands and Sensitive Water Bodies
- The waters are classified as Mataura 3;
- The Mataura River at Mataura Bridge is identified as a Popular Bathing site.

3.9.1 Region-wide Objectives

Objective 2[60]

Water and land is recognised as an enabler of primary production and the economic, social and cultural wellbeing of the region.

Objective 2 (EC interim decision)

Water and land are recognised as enablers of the economic, social and cultural wellbeing of the region.

[59] See https://www.es.govt.nz/about-us/plans-and-strategies/regional-plans/proposed-southland-water-and-land-plan

[60] I note that the Environment Court's Fourth Interim Decision has swapped the order of Objectives 2 and 3. I have retained the same numbering as the Proposed Plan, but anticipate that this will ultimately change.

Assessment

As previously discussed, the Plant is an important component of Southland's agricultural sector and contributes significantly to employment and the local and wider economy.

Objective 3

The mauri of water bodies provide for te hauora o te tangata (health and mauri of the people), te hauora o te taiao (health and mauri of the environment) and te hauora o te wai (health and mauri of the water body).

Objective 3 (EC Interim Decision)

The mauri of water will be acknowledged and protected so that it provides for te hauora o te taiao (health and mauri of the-environment) and te hauora o te wai (health and mauri of the waterbody) and te hauora o te tangata (health and mauri of the people).

Objective 4

Tangata whenua values and interests are identified and reflected in the management of freshwater and associated ecosystems.

Objective 5

Ngāi Tahu have access to and sustainable customary use of, both commercial and non-commercial, mahinga kai resources, nohoanga, mātaitai and taiāpure.

Assessment

As has been advised in the CIAs, the on-going discharge of industrial wastewater to the river, and the historical damming of the river significantly affects cultural values. The proposed upgrades that include the installation of smaller mesh screens on water intakes, disinfection and biological treatment of the wastewater discharge may reduce these effects to some extent – but does not address the fundamental issues of a wastewater discharge to water, the historical installation of the weir and the associated effects on the mauri of the Mataura River.

I also note that discussions between the Applicant and Hokonui Rūnanga may address some issues in relation to the management of the resource, access for customary use and other matters. However, I am unable to advise on this matter and it would be beneficial for the Applicant and Hokonui Rūnanga to outline the extent to which issues and concerns are being addressed and the issues that remain at the hearing.

Objective 6

There is no reduction in the overall quality of freshwater, and water in estuaries and coastal lagoons, by:

(a) maintaining the quality of water in water bodies, estuaries and coastal lagoons, where the water quality is not degraded; and

(b) improving the quality of water in water bodies, estuaries and coastal lagoons, that have been degraded by human activities.

Objective 6 (EC Interim Decision)

Water quality in each freshwater body will be:

(a) maintained where the water quality is not degraded; and

(b) improved where the water quality is degraded by human activities.

Assessment

On the basis that the applications are to be assessed in the absence of the current discharge, the discharge will result in additional contaminants (most notably *E.coli*, ammonia and nutrients) that will inevitably reduce water quality in the (degraded) Mataura River below that which would occur in the absence of the discharge of wastewater.

This effect will be less apparent following the implementation of the proposed upgrades, and for some parameters the quality of the water discharged will be better than that of the receiving waters. However, this is predicated on the timely implementation of the proposed upgrades.

Notwithstanding this, I note that a continuation of the discharge is unlikely to reduce the current state of the river, provide flows and associated contaminant loads are no more than current, and will improve water quality once the proposed upgrades are implemented.

Objective 7

Any further over-allocation of freshwater (water quality and quantity) is avoided and any existing over-allocation is phased out in accordance with freshwater objectives, freshwater quality limits and timeframes established under Freshwater Management Unit processes.

Objective 7 (EC Interim Decision)

Following the establishment of freshwater objectives, limits, and targets (water quality and quantity) in accordance with the Freshwater Management Unit processes:

(a) where water quality objectives and limits are met, water quality shall be maintained or improved;

(b) any further over-allocation of freshwater is avoided; and

(c) any existing over-allocation is phased out in accordance with freshwater objectives, targets, limits and timeframes.

Assessment

This objective reinforces my view that the term and/or conditions of consent, if approved, should not preclude or frustrate the implementation of the NPS FM FMU/NOF processes.

Objective 9

The quantity of water in surface water bodies is managed so that aquatic ecosystem health, life-supporting capacity, outstanding natural features and landscapes and natural character are safeguarded.

Objective 9A

Surface water is sustainably managed to support the reasonable needs of people and communities to provide for their social, economic and cultural wellbeing.

Objectives 9 and 9A (EC Interim Decision)

The quantity of water in surface waterbodies is managed so that:

(a) the life supporting capacity and aquatic ecosystem health, the values of outstanding natural features and landscapes, the natural character and historic heritage values of waterbodies and their margins are safeguarded;

(b) there is integration with the freshwater quality objectives and values (including the safeguarding of human health for recreation): and

(c) provided that (a) and (b) are met, surface water is sustainably managed, in accordance with Appendix K to support the reasonable needs of people and communities to provide for their economic, social and cultural wellbeing.

Assessment

As I have indicated previously, the take is largely non-consumptive and the majority of the water is returned to the river (albeit some as wastewater). The weir also modifies the flow regime for a short section of the river between the structure itself and the point at which the water from the hydro-races are returned to the river. However, this is part of the existing environment.

Objective 11

The amount of water abstracted is shown to be reasonable for its intended use and water is allocated and used efficiently

Assessment

I have addressed a similar provision previously. The use of water is likely to be efficient and appropriate for its intended use. Further assessments of water use efficiency are proposed by the Applicant.

Objective 17

The natural character values of wetlands, rivers and lakes and their margins, including channel and bed form, rapids, seasonably variable flows and natural habitats, are protected from inappropriate use and development.

Objective 17 (EC Interim Decision)

Preserve the natural character values of wetlands, rivers and lakes and their margins, including channel and bed form, rapids, seasonably variable flows and natural habitats that are of significance to the region, and protect them from inappropriate use and development.

Assessment

The wastewater discharge contributes to effects on the health (and hence natural character) of the Toetoes Estuary. While it represents only 1-2% of catchment nutrient loads, this is disproportionate contribution in a very large catchment.

The existing weir affects the natural character of the river and the downstream Mataura Falls. However, it forms part of the existing environment for the application.

Objective 18

All activities operate in accordance with "good management practice" or better to optimise efficient resource use, safeguard the life supporting capacity of the region's land and soils, and maintain or improve the quality and quantity of the region's water resources.

Objective 18 (EC Interim Decision)

All persons implement environmental practices that optimise efficient resource use, safeguard the life supporting capacity of the region's land and soils, and maintain or improve the quality and quantity of the region's water resources.

Assessment

As indicated in the evidence of Ms Andrew, the current treatment and treatment processes at the Plant are not 'best practice' and the proposed treatment improvements are necessary to move towards best practice. In addition, Ms Bennett advises that the replacement of existing intake screens with finer mesh screens is also consistent with best practice.

The Environment Court's Interim decision on Objective 18 confirms the expectation that environmental practices are to be implemented to maintain or improve the quality and quantity of the region's water resources.

3.9.2 Ngāi Tahu Policies

Policy 2 – Take into account iwi management plans

Any assessment of an activity covered by this Plan must:

1. *take into account any relevant iwi management plan; and*
2. *assess water quality and quantity, taking into account Ngāi Tahu indicators of health.*

Assessment

These matters are addressed in respect of Te Tangi a Tauira below.

3.9.3 NPS FM Policies

I have addressed these in Section 3.8.2 (Operative Plan) above.

3.9.4 Water Quality Policies

Policy 13 – Management of land use activities and discharges

1. *Recognise that the use and development of Southland's land and water resources, including for primary production, enables people and communities to provide for their social, economic and cultural wellbeing.*
2. *Manage land use activities and discharges (point source and non-point source) to enable the achievement of Policies 15A, 15B and 15C.*

Policy 14 – Preference for discharges to land

Prefer discharges of contaminants to land over discharges of contaminants to water, unless adverse effects associated with a discharge to land are greater than a discharge to water. Particular regard shall be given to any adverse effects on cultural values associated with a discharge to water.

Policy 15B – Improve water quality where standards are not met

Where existing water quality does not meet the Appendix E Water Quality Standards or bed sediments do not meet the Appendix C ANZECC sediment guidelines, improve water quality including by:

1. *avoiding where practicable and otherwise remedying or mitigating any adverse effects of new discharges on water quality or sediment quality that would exacerbate the exceedance of those standards or sediment guidelines beyond the zone of reasonable mixing; and*
2. *requiring any application for replacement of an expiring discharge permit to demonstrate how and by when adverse effects will be avoided where practicable and otherwise remedied or mitigated, so that beyond the zone of reasonable mixing water quality will be improved to assist with meeting those standards or sediment guidelines.*

Surface water bodies Classified as "Mataura 3"

The Protected Waters other than those parts classified as Mataura 1 and Mataura 2.

- *Any discharge is to be substantially free from suspended solids, grease and oil.*
- *The daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.*
- *The pH of the water must be within the range 6 to 9, except when due to natural causes.*
- *The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours.*
- *There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.*
- *There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances.*
- *The natural colour and clarity of the waters must not be changed to a conspicuous extent.*
- *The change in sediment cover must not exceed 10%.*
- *The oxygen concentration in solution in the waters must not be reduced below 5 milligrams per litre.*
- *The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix G "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of Escherichia coli shall not exceed 130 E. coli per 100 millilitres.*
- *Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.*

Policy 15C – Maintaining and improving water quality after FMU processes

Following the establishment of freshwater objectives and limits under Freshwater Management Unit processes, and including through implementation of non-regulatory methods, improve water quality where it is degraded to the point where freshwater objectives are not being met and otherwise maintain water quality where freshwater objectives are being met.

Assessment

I have addressed similar policies previously in my assessment of the RWPS and advise:

- Policy 14 includes the preference for discharges to land, but has removed the reference to 'practicable' that is in the RWPS - I understand this omission is still subject to appeal. However, as before I consider this policy is not directive and while there has been an assessment of the feasibility and implications of land disposal, Ms Andrew advises at this point in time a land disposal option is not currently feasible. However, should the applications be approved, then further assessment on alternative options should be on-going.
- The non-complying activity status of the applications is a result of the application not being able to meet the Mataura 3 water classification standards in respect of the concentration of *E.coli*. In part, this occurs as the background water quality in the river is such that the required standards are not able to be met even in the absence of the discharge[61].
- Until the proposed upgrades are implemented, the discharge contributes significantly to downstream *E.coli* levels. However, following UV disinfection, *E.coli* levels in the discharge are reduced substantially (more than 1,000 times) to achieve concentrations that are similar to (or less than) the current background levels in the river.
- Should the applications be approved then they should enable the freshwater objectives and limits under Freshwater Management Unit/NOF processes to be given effect to. This will assist in achieve the long term objectives for the Mataura River and wider FMU.

Policy 16A – Industrial and trade processes that may affect water quality

Minimise the adverse environmental effects (including on the quality of water in lakes, rivers, artificial watercourses, modified watercourses, wetlands, tidal estuaries, salt marshes and groundwater) by requiring the adoption of the best practicable option to manage the treatment and discharge of contaminants derived from industrial and trade processes.

Assessment

In my opinion, the determination of what represents the 'best practicable option' for a discharge is assessment that requires a weighting of a range of factors including (as defined in the Act):

a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and

(b) the financial implications, and the effects on the environment, of that option when compared with other options; and

[61] See 4Sight's Technical Review – State of the Environment Analysis, 14 October 2019, Page 3 - 4

(c) the current state of technical knowledge and the likelihood that the option can be successfully applied.

I accept the application where it cites Dr Royden Somerville QC[62]:

'The words 'best practicable option' do not mean the best option, the best technical option, the best economic option, or the best environmental option. A judgement needs to be made as to what is practicable and proportionate to the risks likely from a contaminant.'

That is, the best practicable option is not necessarily the best option, but one that is appropriate to the situation and associated effects – and what is appropriate practice. In this situation, the risks and adverse effects of the discharge can be substantially minimised through the proposed mitigation of UV disinfection and biological treatment, which I understand to be relatively standard technology. The main exception to this is the effects on Tangata Whenua values which, as indicated previously, can be reduced but not eliminated unless the discharge is removed from the river.

Importantly, however, I do not agree with the application where it states:

'*The technical assessments identified no adverse effects of the Alliance discharge requiring immediate or urgent redress.[63]*'

Based on the technical reviews that have been undertaken, there are several aspects of the activities and associated adverse effects that are of significance such that they should be addressed more quickly than the application currently proposes:

- The installation of finer mesh screens on the water intakes;
- The implementation of UV disinfection; and
- The implementation of biological treatment.

These are required to achieve best practice in a suitable timeframe and to be consistent with the relevant statutory framework. Further, in my experience, the best practicable option at a point in time may not continue to be the best practicable option in the future as technology and expectations change. This is particularly pertinent to this application, where the future FMU/NOF process may provide other considerations (including new freshwater objectives and limits) that are relevant to the discharge. In my opinion, the consent term and/or consent reviews should ensure that the future requirements of the FMU/NOF process can be efficiently and effectively implemented.

Policy 20 – Management of water resources

Manage the taking, abstraction, use, damming or diversion of surface water and groundwater so as to:

[62] Take and discharge application, page 72

[63] Take and discharge application, page 74

1A. recognise that the use and development of Southland's land and water resources, including for primary production, can have positive effects including enabling people and communities to provide for their social, economic and cultural wellbeing;

1. avoid, remedy or mitigate adverse effects from the use and development of surface water resources on:

(a) the quality and quantity of aquatic habitat, including the life supporting capacity and ecosystem health and processes of water bodies;

(b) natural character values, natural features, and amenity, aesthetic and landscape values;

(c) areas of significant indigenous vegetation and significant habitats of indigenous fauna;

(d) recreational values;

(e) the spiritual and cultural values and beliefs of tangata whenua;

(f) water quality, including temperature and oxygen content;

(g) the reliability of supply for lawful existing surface water users, including those with existing, but not yet implemented, resource consents;

(h) groundwater quality and quantity; and

(j) mātaitai, taiāpure and nohoanga;

Assessment

I have addressed similar matters previously.

3.9.5 **Activities that affect water quality and quantity**

Policy 28 – Structures and bed disturbance activities of rivers (including modified watercourses) and lakes

Manage structures, bed disturbance activities and associated discharges in the beds and margins of lakes, rivers and modified watercourses, to avoid, remedy or mitigate adverse effects on:

1. water quality and quantity;

2. habitats, ecosystems and fish passage;

3. indigenous biological diversity;

5. the spiritual and cultural values and beliefs of the tangata whenua;

6. mātaitai and taiāpure;

7. public access (except in circumstances where public health and safety are at risk) and amenity values;

8. natural character values and outstanding natural features;

9. river morphology and dynamics, including erosion and sedimentation;

10. flood risk;

11. infrastructural assets;

12. navigational safety; and

13. landscape values.

Assessment

As I have discussed previously, the existing weir structure is subject to current consents for damming and diversion and is part of the existing environment. The structure itself has existed since 1920s – 1930s and I

conclude that its continued use a likely to be a permitted activity under the PSWLP. Accordingly, I consider this policy has limited relevance.

3.9.6 Consideration of Resource Consent Applications

Policy 40 – Determining the term of resource consents

When determining the term of a resource consent consideration will be given, but not limited, to:

1. *granting a shorter duration than that sought by the applicant when there is uncertainty regarding the nature, scale, duration and frequency of adverse effects from the activity or the capacity of the resource;*
2. *relevant tangata whenua values and Ngāi Tahu indicators of health;*
3. *the duration sought by the applicant and reasons for the duration sought;*
4. *the permanence and economic life of any capital investment;*
5. *the desirability of applying a common expiry date for water permits that allocate water from the same resource or land use and discharges that may affect the quality of the same resource;*
6. *the applicant's compliance with the conditions of any previous resource consent, and the applicant's adoption, particularly voluntarily, of good management practices; and*
7. *the timing of development of FMU sections of this Plan, and whether granting a shorter or longer duration will better enable implementation of the revised frameworks established in those sections.*

Assessment

I have addressed the duration of a resource consent in relation to the RWPS. The criteria in this policy are similar, with the addition of the consideration of the timing of the implementation of the FMU objectives and limits. This is an important consideration, which I raised in my earlier assessment. In my opinion, the FMU/NOF process will provide the agreed (with stakeholders, iwi and the community) meaning of Te Mana o te Wai for the Mataura Catchment and provide the framework for moving forward to achieve the desired objectives. In my opinion, it is essential that the NPS FM is able to be implemented as it is intended to be, recognising the fundamental concept of Te Mana o te Wai and the hierarchy provided by the NPS FM objective to protect the health and well-being of water bodies and freshwater ecosystems as a priority.

In my opinion, this can be achieved in either of two ways:

- A short term consent (10 years), with expiry timed to enable the future requirements of the FMU/NOF process to be adopted through the renewal of the resource consent;
- A moderate term consent (10 to 20 years) that is subject to conditions that enables the consent to be reviewed in light of the future requirements of the FMU/NOF process.

I consider that the former approach provides greater certainty that the outcomes of the FMU/NOF can be adopted. This enables all aspects of the consent to be considered through a new resource consent including, if required, alternative means of treatment and discharge.

For the reasons that I discuss further below in Section 4, this is the option that I consider best gives effect to the statutory framework and in particular the intent of the NPS FM.

3.10 Any other relevant matter - Te Tangi a Tauira/The Cry of the People - Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008

Te Tangi a Tauira Iwi Management Plan (Management Plan) is the natural resource and environment iwi management plan for the Southland region. It is a document to which regard should be had in accordance with section 104(1)(c) of the Act and the provisions of the operative and proposed Southland regional plans.

The Management Plan consolidates Ngāi Tahu ki Murihiku values, knowledge and perspectives on natural resource and environmental management issues and is an expression of kaitiakitanga. Its purpose is to:

- describe the values underpinning the relationship between Ngāi Tahu ki Murihiku and the natural environment;
- identify the primary issues associated with natural resource and environmental management in the takiwā, from the perspective of Ngāi Tahu ki Murihiku;
- articulate Ngāi Tahu ki Murihiku policies and management guidelines for natural resource and environmental management, wāhi tapu and wāhi taonga.

3.10.1 **Key Policies**

The Management Plan sets out ngā take (issues) and ngā kaupapa (policies) associated with natural resource and environmental management. There are a substantial number of policies of relevance to the application and I have provided those that I consider to be most relevant to the key issues below. I note there is some overlap between policies in different sections (for example management of cultural and environmental effects, monitoring, consent term), which I have generally not repeated.

Wastewater Disposal (3.5.2)

5: Assess proposed wastewater discharge activities in terms of:

a. type/ nature of the discharge;
b. location and sensitivity of the receiving environment;
c. cultural associations with location of operations;
d. actual and potential effects on cultural values;
e. available best practice technology;
f. mitigation that can occur (e.g. using plants to filter waste, discharging at specific times to minimise impact, treatment options)
g. community acceptability;
h. cost.

6. Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Even if the discharge is treated and therefore considered “clean”, it may still be culturally unacceptable. Generally, all discharge must first be to land.

8. Wastewater disposal options that propose the direct discharge of treated or untreated effluent to water need to be assessed by the kaitiaki rūnanga on a case by case, individual waterway, basis. The appropriateness of any proposal will depend on the nature of the proposal, and what waterway is

involved. Individual waterways possess their individual mauri and values, and kaitiaki rūnanga are in the best position to assess the potential impacts of a proposal on such values.

9. Encourage creative, innovative and sustainable approaches to wastewater disposal that make use of the best technology available, and that adopt principles of waste reduction and cleaner production (e.g. recycling grey water for use on gardens, collecting stormwater for a pond that can then be used for recreation in a new subdivision).

10. Require that the highest environmental standards are applied to consent applications involving the discharge of contaminants to land or water (e.g. standards of treatment of sewage).

15. Any discharge activity must include a robust monitoring programme that includes regular monitoring of the discharge and the potential effects on the receiving environment. Monitoring can confirm system performance, and identify and remedy any system failures.

16. Require that large scale wastewater disposal operations (e.g. town sewage schemes, industry) develop environmental management plans, including contingency plans to cope with any faults, breakdowns, natural disasters, or extreme weather events (e.g. cash bonds for liability).

17. Duration of consent for wastewater disposal must recognise and provide for the future growth and development of the industry or community, and the ability of the existing operations to accommodate such growth or development.

18. Recommend a duration not exceeding 25 years, for discharge consents relating to wastewater disposal, with an assumption that upon expiry (if not before), the quality of the system will be improved as technological improvements become available. In some instances, a lesser term may be appropriate, with a condition requiring the system is upgraded within a specified time period.

19. Require conditions of consent that allow for a 5-year review of wastewater disposal activities. During review, consent holders should be required to consider technological improvements. If improvements are available, but not adopted, the consent holder should provide reasons why.

Industry (section 3.5.4)

1. Encourage industry to set an example through demonstrating a commitment to best practice, new technology, environment, community and public health. The use of resources in industrial operations must be balanced with investments in the community and the environment.

2. Capital expenditure for better environmental results should not be an adverse consideration, but rather an investment in the industry's future.

General water policies (3.5.10)

1. The role of Ngāi Tahu ki Murihiku as kaitiaki of freshwater must be given effect to in freshwater policy, planning and management.

3. Protect and enhance the mauri, or life supporting capacity, of freshwater resources throughout Murihiku.

Rivers (3.5.11)

7. The cultural importance of particular rivers (e.g. Statutory Acknowledgements, rivers associated with whakapapa and identity) must be reflected in the weighting of Ngāi Tahu responses and submissions on consents associated with these rivers.

10. Ensure that all native fish species have uninhibited passage from the river to the sea at all times, through ensuring continuity of flow ki uta ki tai.

Discharges to water (3.5.12)

1. Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Even if the discharge is treated and therefore considered "clean", it may still be culturally unacceptable. Generally, all discharge must first be to land. This general policy is a baseline or starting point. From this point, the Rūnanga can assess applications on a case by case basis.

4. When existing rights to discharge to water come up for renewal, they must be considered in terms of alternative discharge options.

5. When assessing the alternatives to discharge to water, a range of values, including environmental, cultural and social, must be considered in addition to economic values.

Water Quality (3.5.13)

2. Strive for the highest possible standard of water quality that is characteristic of a particular place/waterway, recognising principles of achievability. This means that we strive for drinking water quality in water we once drank from, contact recreation in water we once used for bathing or swimming, water quality capable of sustaining healthy mahinga kai in waters we use for providing kai.

7. When assessing the effects of an activity on water quality, where the water source is in a degraded state, the effects should be measured against the condition that the water source should be, and not the existing condition of the water source.

Water quantity – Abstractions (3.5.14)

6. Encourage water users to be proactive and use water wisely.

20. Avoid adverse effects on the base flow of any waterway, and thus on the mauri of that waterway and on mahinga kai or taonga species.

Mahinga kai (3.5.14)

2. Work towards the restoration of key mahinga kai areas and species, and the tikanga associated with managing those places and species.

4. Consider the actual and potential effects of proposed activities on mahinga kai places, species and activities when assessing applications for resource consent.

Freshwater fisheries (3.5.20)

1. All Ngāi Tahu Whānui, current and future generations, must have the capacity to access, use and protect native fisheries, and the history and traditions that are part of customary use of such fisheries, as guaranteed by the Treaty of Waitangi.

5. Avoid compromising freshwater fishery values as a result of diversion, extraction, or other competing use for water, or as a result of any activity in the bed or margin of a lake or river.

General Policy for Southland's Coastal Environment (3.6.1)

2. Recognise that the degree of connection between the coastal and inland environments is inherent when developing robust systems to address areas of degradation and mitigate for future and potential environmental effects.

Assessment

The Management Plan sets out a wide range of policies of relevance to the application. Wastewater discharges (including treated industrial discharges) to water are considered unacceptable, unless they are first discharged to land. The appropriateness of any proposal will depend on the nature of the proposal and assessed on a case-by-case basis. Where discharges are to land or water, they are expected to be of a high standard, be consistent with best practice, subject to appropriate monitoring and have contingency and response plans. Accordingly, while the proposal to discharge to water is fundamentally contradictory to some policies of the Management Plan, upgrades to the Plan will assist in ensuring the discharge is more consistent with other policies – particularly in respect of best practice and the standard of the discharge.

In respect of the duration of consents for wastewater disposal, the policies indicate that it must recognise and provide for the future growth and development of the industry and the ability of the existing operations to accommodate such growth or development. A maximum duration not exceeding 25 years is recommended in the Management Plan, the expectation that the quality of the system will be improved as technological improvements become available. However, the Management Plan also recognises that a lesser term may be appropriate. 5-yearly reviews of wastewater disposal activities are also recommended to consider technological improvements. In my opinion, these can be provided for by conditions of consent.

In respect of discharges to water and water quality, the Management Plan aspires to a high standard of water quality and anticipates that replacement applications will consider alternative forms of discharges. While the Applicant has considered alternatives, based on Ms Andrew's evidence, I consider that further consideration should be given to alternative discharge and treatment options – including alternative discharge options. As I have indicated previously, this can be achieved by either a shorter term consent or appropriate consent reviews.

3.11 Assessment of Permitted Baseline (s104 (2))

Section 104(2) of the Act allows a consent authority to disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect –generally referred to the 'permitted baseline'. In my opinion, there are no permitted activities in the operative RWPS that form a relevant permitted baseline for the application.

Section 104(2) does not explicitly apply to proposed plans, and hence the permitted baseline does not apply to the PSWLP. Notwithstanding this, I note that rule 60 (ab) of the PSWLP, which permits the use of existing lawfully constructed weirs and dams, subject to conditions, is identified as being under appeal by Heritage New Zealand. I have reviewed the summary of submissions on Environment Southland website, and Heritage New Zealand's appeal and advise:

- this is the only appeal assigned to this rule;
- the appeal relates to the location of an advice note (pertaining to the Heritage New Zealand Pouhere Taonga Act 2014) within the rules. It does not relate to the substance of the rule or its conditions.

Accordingly, this rule is likely to become operative as currently drafted. This does not obviate the requirement to obtain consent for the use of the weir at this time. However, it seems likely that this activity (the use of the weir) will be permitted in the future.

3.12 Value of the investment of the existing consent holder (s104(2A))

Section 104(2A) of the Act requires consent authorities to have regard to the value of the investment of existing consent holders in relation to applications that are affected by section 124 (Exercise of resource consent while applying for new consent). This section is relevant to this application.

Appendix 6 to the application indicates that the (2018) insured value of the Plant is $225 million[64]. Further investment is proposed in the Plant, including upgrades to water use efficiency and treatment of the wastewater. As advised in the application, these upgrades constitute investment of at least $18 M[65].

3.13 Section 104D – Non-complying activities

Section 104D is relevant to applications for the applications and the 'bundled' applications are to be assessed as a non-complying activity. This section imposes restrictions in the grant of resource consents as follows:

> *(1) Despite any decision made for the purpose of section 95A(2)(a) in relation to adverse effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either—*
>
> *(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii) applies) will be minor; or*
>
> *(b) the application is for an activity that will not be contrary to the objectives and policies of—*
>
> *(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or*

[64] Attachment 1, Appendix 06, Assessment of Economic Benefits, para 2.5

[65] Attachment 1: Take and discharge application, pages 25 and 26

(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or

(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.

I address the two 'gateways' of Section 104D(1) as follows.

3.13.1 Are the adverse effects 'more than minor' (Clause a)?

Based on the application and technical review information that has been provided, I have concluded that the adverse effects of the activity are more than minor. This primarily reflects:

- The CIAs, provided by the Applicant, that state that the continuing discharge of wastewater to water is considered culturally offensive and inconsistent with Te Tangi a Tauira, 2008. The historical modification of the river by the weir is also an on-going issue for Tangata Whenua.
- The levels of *E.coli* in the discharge and the potential associated health risk, which Dr Poore assesses as being significant (prior to UV disinfection); and
- Cumulative nutrient effects on the downstream Toetoes Estuary, which have been assessed by Dr Wilson as being 'moderate'.

While microbial and nutrient effects can be reduced significantly by improved wastewater treatment, potentially to be no more than minor, this is not proposed for some time.

3.13.2 Is the application contrary to the objectives and policies of the RWPS and the PSWLP (Clause b)?

Both the RWPS and the PSWLP contain a significant number of objectives and policies, which I have discussed in some detail above. Inevitably a proposal to discharge contaminants to, and dam and divert water within, a river will not be consistent with some provisions – particularly those of a 'protective' nature that seek to maintain or improve the environment, while it will likely be consistent with provisions that are more 'enabling'. Accordingly, I consider that a two-step approach to assessing the application against this clause is appropriate:

1. Is the activity fundamentally contrary to any directive ('avoid') provisions of the Operative or Proposed Plans? and, if not,
2. Is the application, on balance, contrary to the Operative and Proposed regional plans?

Is the activity fundamentally contrary to any directive provisions of the Operative or Proposed Plans?

In my opinion, the key provision that needs to be considered is NPS FM Clause 3.24 Policy 1.

NPS FM Clause 3.24 (inserted into regional plans)

(1) The loss of river extent and values is avoided, unless the council is satisfied:

(a) that there is a functional need for the activity in that location; and

(b) the effects of the activity are managed by applying the effects management hierarchy.

(2) Subclause (3) applies to an application for a consent for an activity:

(a) that falls within the exception to the policy described in subclause (1); and

(b) would result (directly or indirectly) in the loss of extent or values of a river.

(3) Every regional council must make or change its regional plan(s) to ensure that an application referred to in subclause (2) is not granted unless:

(a) the council is satisfied that the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity; and

(b) any consent granted is subject to conditions that apply the effects management hierarchy.

These policies are required to be inserted in the relevant regional plan as per the NPS FM, however Policy 1 provides the key test. In order to assist in applying this policy, Environmental Southland sought legal advice as to the meaning and application of loss of value (including potential values). This advice[66] states:

Loss of value is defined in the NPSFM. This definition provides, in relation to natural inland wetlands and rivers, that "loss of value … means the wetland or river is less able to provide for the following existing or potential values …".

Therefore, it follows that to lose value, a wetland or river must be "less able" to provide for one of the specified values than it was previously. This contemplates a comparison between a previous state and a potential future state. In other words, this indicates that there is a bar set at the current state against which the potential future state, which includes the proposed activity, is compared. In the case of the renewal of a consent for an existing discharge, the current state is that which would occur absent the discharge.

If, in the potential future state, a wetland or river is less able to provide for one of the specified values than it is in the current state, that constitutes a loss of value or potential value.

If, in the potential future state, a wetland or river is equally or more able to provide for one of the specified values than it is in the current state, in our opinion, that does not constitute a loss of value or potential value.

The assessment of whether a proposal represents a loss of value is complicated by the reference to "potential values" in the definition of "loss of value". It is unclear what is intended by "potential values". We consider that there are two arguable meanings:

a. On a narrow interpretation, "potential values" could contemplate that some of the values listed (e.g. ecosystem health, indigenous biodiversity and Māori freshwater values) are difficult to prove they exist in a waterbody. For example, a river survey might show that an area may provide habitat for indigenous fish, despite no such fish being present at the time of survey. Thus the relevant reach may have potential indigenous biodiversity values, but not demonstrable "existing values".

[66] Memorandum from WynnWilliams, 6 November 2020

b. On a wider interpretation, "potential values" could refer to the values that the waterbody could have in the future. Prior to undertaking the NOF process, this would include potential enhanced values for ecosystem health, indigenous biodiversity, hydrological functioning, Maori freshwater values, or amenity values. Following the NOF process, this could include such enhanced values, as well as any aspirational values identified by the community that do not already exist in the water body.

Having regard to the NPSFM's focus on improving freshwater quality, we consider that the second, wider interpretation is likely. In the event that interpretation is accepted, the policy guidance provided in clause 3.24 requires that activities are avoided that would make a water body is less able to provide for a potential value in the future. In essence, this would mean that there could be no reduction in existing values and also that any activity must not preclude the potential for improvement in a value in the future.

As I have advised previously, an adverse effect does not necessarily correlate with a loss of value – although significant adverse effects are likely to. For example, a discharge may degrade water quality in a minor way that does not affect the relevant freshwater value and objective (as measured by the adopted values and associated attribute states) from being achieved.

In the absence of the outcomes for the FMU/NOF framework that has determined the visions, outcomes and associated values and attribute states, it is difficult to conclude conclusively whether the discharge 'avoids the loss of values'. In my view the activities have the potential to affect (and diminish) cultural values (potentially including mahinga kai) and human health/contact values, and contribute to cumulative effects on ecological health values.

However, I have concluded that the discharge is not contrary to this policy **provided that**:

1. The quality of the discharge, particularly in respect of microbial contaminants and to a lesser extent nutrients, is improved in as short a time as is realistically possible – substantially less than the 5 and 15 years proposed by the Applicant;
2. The consent term/conditions are set such that the future outcomes of the FMU/NOF framework, which establish the specific values that are to be managed for in the Mataura River, are able to be implemented;
3. There is a collaborative approach to managing the freshwater resources with Tangata Whenua to ensure that cultural values, including mauri and mahinga kai and the ability to express kaitiakitanga and cultural identity are able to be improved;
4. The term of the weir consents does not extend past that of the existing consents, which constitute part of the existing environment.

Overall assessment

In my opinion, provided that the above matters are provided for, the applications are in the round, not contrary to the objectives and policies of both the Operative and Proposed regional plans. In concluding this, I acknowledge that:

- The activities are not consistent with some policies relating to the protection of Tangata Whenua values. However, the records of engagement between the Applicant and Hokonui Rūnanga suggest that some effects can be mitigated to some extent.

- The discharge of wastewater leads to elevated levels of *E.coli* in the Mataura River and there is disagreement as to the implications of this on public health risk. This can be mitigated through a substantially shorter timeframe for the implementation of UV disinfection.
- Cumulative effects, including on the Toetoes Estuary, can be substantially reduced by proposed biological treatment.
- While the Operative and Proposed plans indicate a preference for a land discharge where one is practicable and does not lead to greater adverse effects, the technical review has concluded that a land disposal option is currently not feasible – although alternative treatment and disposal options should continue to be considered.

I consider that the activities are consistent with relevant policies in relation to the following aspects:

- The activities are able to be approved under the Mataura WCO, and hence can be considered to have no more than a minor impact on the significant values that this order seeks to protect.
- The desired water quality standards for this part of the river (Mataura 3) will be generally met. The exception to this is *E.coli* – although this standard is not achieved in background water quality. However, effects can be addressed by applying UV treatment in a short period of time followed by biological treatment. Following the proposed improvements, *E.coli* levels in the discharge are expected to be lower than those in the Mataura River.
- The activities are assessed as not having a notable effect on aquatic ecology.
- The resource consents for the activities can be subject to a term and/or conditions that enable review of the discharge to ensure that it keeps pace with changing expectations and requirements, particularly those associated with the future Mataura FMU/NOF process.
- The Applicant has engaged with Tangata Whenua to identify a process to work together in the future to build a collaborative approach to managing the freshwater mātaitai and other matters in relation to the consents and the river.
- The weir can be considered as part of the existing environment for the term of the existing consents.
- The proposals provide a substantial contribution to the social and economic well-being of the community.

In summary, I consider that the applications can pass the 'gateway test' of section 104(D), provided that the matters I have raised above are able to be addressed. I note that this conclusion is predicated on the proposed upgrades being implemented substantially sooner than proposed in the application.

3.14 Section 105 Matters relevant to certain applications

Section 105 directs:

(1) If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in section 104(1), have regard to—

(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and

(b) the applicant's reasons for the proposed choice; and

(c) any possible alternative methods of discharge, including discharge into any other receiving environment.

Assessment

The Applicant has undertaken an assessment of alternative treatment and disposal options. It has concluded that continuing the existing discharge, subject to identified improvements, is the best practicable option.

The 4Sight Wastewater Review identified that further consideration should be given to a land-based disposal option, particularly a seasonal land/river discharge option. This has also been the subject of a number of submissions, including from Hokonui Rūnanga and Te Rūnanga O Ngāi Tahu and others, and discussions following the CIAs.

Following a re-assessment of disposal options by PDP, Ms Andrew agrees that options for land disposal are extremely limited and may be deemed not the best practicable option for the reasons she has listed. In addition, adverse effects can be substantially reduced through the expedited implementation of the proposed upgrades.

Accordingly, in my opinion, appropriate regard has been had to the matters outlined in section 105 of the Act.

3.15 Section 107 Restriction on grant of certain discharge permits

(1) Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing—

(a) the discharge of a contaminant or water into water; or

(b) a discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or

(ba) the dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,—

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

(c) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:

(d) any conspicuous change in the colour or visual clarity:

(e) any emission of objectionable odour:

(f) the rendering of fresh water unsuitable for consumption by farm animals:

(g) any significant adverse effects on aquatic life

Assessment

The 4Sight Water Quality and Ecology Review and the evidence of Dr Wilson indicates that the discharges are unlikely to give rise to the effects specified in s107 (1). Accordingly, I consider that s107 does not preclude the discharge applications from being granted.

I note, for completeness, that on my site visit I observed some foaming both downstream of the Plant discharge (this is visible in the photographs in Attachment 10) and also in the river below the weir, but upstream of the discharge. I cannot confirm whether the foaming downstream was a result of the Plant discharge. I note that the assessment provided by the Applicant indicates that foaming is primarily observed upstream of the Plant discharge[67].

3.16 Part 2 of the RMA

Traditionally, planning processes took an 'overall broad judgement' approach to the assessment of consent application, plans and submissions against the various matters is sections 5, 6, 7 and 8 of the RMA, in addition to the other statutory requirements. The Supreme Court in King Salmon[68], in the context of a plan change, held that there was no need to refer back up the hierarchy of planning instruments to Part 2 to determine a plan change, unless there was some invalidity, uncertainty, or incomplete coverage in the documents promulgated under it, because other high level planning instruments (in that case the NZCPS) were deemed to have given effect to Part 2 at the national, regional and district level.

The Court of Appeal in R J Davidson Family Trust v Marlborough District Council[69] addressed the relevance of the purpose and principles of the RMA ("Part 2") for resource consent decision making with reference to the King Salmon decision. It determined:

If it is clear that a plan has been prepared having regard to pt 2 and with a coherent set of policies designed to achieve clear environmental outcomes, the result of a genuine process that has regard to those policies in accordance with s 104(1) should be to implement those policies in evaluating a resource consent application. Reference to pt 2 in such a case would likely not add anything. It could not justify an outcome contrary to the thrust of the policies. Equally, if it appears the plan has not been prepared in a manner that appropriately reflects the provisions of pt 2, that will be a case where the consent authority will be required to give emphasis to pt 2.

A possible challenge to the validity of a plan is where that plan has been prepared prior to the release of a higher-order planning instrument (for example the recent NPS FM), in which case it cannot be assumed to give effect to it and so recourse back up through the planning hierarchy (and, potentially, to Part 2) is appropriate. Accordingly, I provide an assessment of the application against Part 2 of the Act.

[67] Application Appendix 2, page 46.

[68] Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd [2014] NZSC 38

69 R J Davidson Family Trust v Marlborough District Council [2018] NZCA 316, paras 74 and 75

3.16.1 Section 5

The purpose of the RMA (section 5) is to promote the sustainable management of natural and physical resources. The Act defines "sustainable management" as:

> *"managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while—*
>
> *(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
>
> *(b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
>
> *(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment."*

3.16.2 Section 6 – Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance that are relevant to the applications:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(g) the protection of protected customary rights:

3.16.3 Section 7 – Other matters

Section 7 states that in achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to matters that include the following:

(a) kaitiakitanga:

(d) intrinsic values of ecosystems:

(f) maintenance and enhancement of the quality of the environment:

(h) the protection of the habitat of trout and salmon:

3.16.4 Section 8 – Treaty of Waitangi

Section 8 states that In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

3.16.5 Part 2 Assessment

The operation of the Alliance Plant, for which consent are sought, provides an important contribution to the local and regional community and international export markets. This contributes significantly to

employment, both directly at the Plant and through additional services, and the social and economic well-being of people and communities. The Plant also provides an essential service for the processing of cattle, which otherwise would need to be processed elsewhere. The importance and benefits of the Plant are not in dispute.

The operation of the Plant requires the taking of water for a range of purposes and the disposal of wastewater from its activities. The discharge of wastewater to the Mataura River and the damming/diversion of water by the weir, which are the primary activities of concern in respect of the applications, has occurred for some time – with the weir having been in place for more than 90 years.

As I have discussed above, the activities for which consent has been sought has the potential to affect several matters of national importance. These matters include the preservation of the natural character of the coastal environment, the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga and the protection of customary rights.

The activities also have the potential to affect 'other matters' to which regard must be had. These include: kaitiakitanga, the intrinsic values of ecosystems, the maintenance and enhancement of the quality of the environment and the protection of the habitat of trout and salmon.

While effects on these matters cannot be avoided in their entirety, they can be mitigated as I have discussed above. Of particular importance are the proposed upgrades, which will substantially reduce risks to human health and potential impacts on freshwater and downstream estuarine ecosystems of significance. In recognition of the significant values of the Mataura River – including being an area of high cultural value, a Mātaitai Reserve in the vicinity of the discharge, subject to the Mataura WCO and the downstream Toetoes Estuary RAMSAR site – the need to ensure that the discharge is improved to a high standard over a short period of time is, in my opinion, necessary to appropriately recognise, provide for and have regard to these significant values.

The principles of the Treaty of Waitangi can also be taken into account through on-going engagement and partnership with Tangata Whenua, as proposed by the Applicant and Hokonui Rūnanga.

Notwithstanding the high cultural, ecological and recreational values of the Mataura River and the downstream Toetoes Estuary, I consider that approving the consents is consistent with Part 2 of the Act, subject to conditions that ensure the discharge is improved to an appropriate standard in a relatively short period of time and which do not 'lock in' the discharge to the river for a long period of time. This reflects the significant benefits and contribution of the Plant to local and regional communities and the wider economy, while ensuring adverse effects are appropriately mitigated within a suitable timeframe.

4 Recommendation and Reasons

4.1 Take and Discharge Consents

4.1.1 Recommendation

In light of my assessment above, I recommend that the applications for:

Water Permit *To take and use 21,200 m^3 per day of surface water from a hydro race fed by the Mataura River for condenser cooling water purposes*

Discharge Permit *To discharge 21,200 m^3 per day of condenser cooling water from the meat works to the Mataura River*

Water Permit *To take and use 8,000 m^3 per day of surface water from a hydro race fed by the Mataura River for meat processing and truck washing purposes*

Discharge Permit *To discharge 8,000 m^3 per day of treated meat works wastewater to the Mataura River*

Be approved subject to the following:

- A consent term of 10 years;
- The following timing of proposed upgrades:
  - Fish screen replacement – within 1 year of the consent commencing;
  - UV (or equivalent) disinfection within 1 year of the consent commencing; and
  - Full biological treatment – within 5 years of the consent commencing.
- Review conditions that enable the consent to be reviewed:
  - At regular intervals to address any unanticipated adverse effect;
  - Within 1 year of any regional plan change that fully implements the outcomes of the Mataura FMU process becoming operative.
- Appropriate conditions of consent including:
  - A maximum daily wastewater discharge limit, monthly average, and monthly and annual limits to ensure that the annual discharge load does not substantially increase beyond what is currently discharged;
  - Monitoring and reporting, as indicated in the draft EMP provided by the Applicant;
  - Low flow Contingency Plans

4.1.2 Key reasons for the recommendation

Grant or refuse

In my opinion, the applications for the take and discharge can be granted as:

- The application provides significant social and economic benefits to the local and regional community. The Plant is a substantial employer in the region and contributes significantly to the wider economy of the region.
- The application seeks to renew existing resource consents. Accordingly, pursuant to section 124 of the Act, regard must be had to the investment in the Plant, which in my opinion is significant.
- The activities can be approved under the Mataura WCO, and hence can be considered to have no more than a minor impact on the significant values that this order seeks to protect.
- The activities can be approved under section 104D of the Act provided that:
  - The quality of the discharge, particularly in respect of microbial contaminants and to a lesser extent nutrients, is improved in as short a time as is realistically possible – substantially less than that proposed by the Applicant;
  - The consent term/conditions are set such that the future outcomes of the FMU/NOF framework are able to be implemented and are not frustrated by a long consent term;
  - There is a collaborative approach to managing the freshwater resources with Tangata Whenua to ensure that cultural values, including mauri and mahinga kai and the ability to express kaitiakitanga and cultural identity are able to be improved.
- The activities are assessed as not having a notable effect on aquatic ecology in the Mataura River;
- While the wastewater discharge contributes to cumulative effects including on the Toetoes Estuary, which is a RAMSAR site of international significance, these effects can be substantially reduced by the proposed biological treatment and contribute to the catchment-wide improvements that are necessary to reverse the decline in the health of the estuary.
- The improvements to the discharge will significantly reduce the potential impacts on water quality and public health risk, and result in microbial water quality in the discharge that is similar to (and potentially better than) upstream water quality.
- The desired water quality standards for this part of the river (Mataura 3) will, in the most part, be met. The exception to this is *E.coli*. However, once the plant upgrades are complete, the ability to comply with this standard will primarily be driven by the background water quality in the river and not the Plant discharge itself.
- The resource consents for the activities can be subject to conditions that:
  - Ensure that contaminant loads do not increase beyond that currently discharged.
  - Enable review of the discharge to ensure that it keeps pace with changing expectations and requirements, particularly water quality objectives and limits set under the future Mataura FMU/NOF process.
  - Provide for appropriate monitoring and reporting.

In coming to this view, I have given significant consideration to the recently gazetted NPS FM, which provides primary emphasis on protecting the health and well being of water bodies and freshwater ecosystems over other 'uses' of water. In my opinion, the NPS FM provides substantially greater emphasis on Te Mana o te Wai and the health and well-being of freshwater bodies and aquatic ecosystems than was the case in previous national directions. In my opinion, the clear intention of this national direction is to improve degraded water bodies such as the Mataura River, and retaining the 'status quo' discharge for some time following the commencement of this consent under a long term consent is not consistent with

this intent – nor the NPS FM itself. This has been a primary consideration in my recommendations on term and the timeframes for Plant upgrades.

I acknowledge that the direct discharge of industrial wastewater to the river is offensive to Tangata Whenua and is inconsistent with some policies of the Southland RPS, Operative and Proposed Regional Plans and Te Tangi a Tauira. However, I note that the Applicant has engaged with Hokonui Rūnanga and is developing a collaborative approach to managing the freshwater resources with Tangata Whenua to ensure that cultural values, including mauri and mahinga kai and the ability to undertake kaitiakitanga and express cultural identity are able to be improved. This does not eliminate the adverse effects on Tangata Whenua values, but mitigates them to some extent and provides a pathway to potentially addressing these concerns in the future.

I acknowledge that there are significant submissions both in support and opposition to the application. In my opinion, this recommendation addresses most of the specific points raised in the submissions in opposition while enabling the on-going operation of the Plant consistent with submissions in support – albeit with substantially shorter upgrade timeframes and consent duration.

Term of Consent

The Applicant has sought a term of 35 years. The primary basis for the 10 year consent term I have recommended is to provide the opportunity for the resource consent to be reassessed in the context of the outcomes of the Mataura FMU/NOF process – recognising that this is a major industrial discharge to a river that has high cultural, recreational and ecological values. To grant a substantially longer consent term risks 'locking in' the discharge to the Mataura River for an extended period of time, with the potential to frustrate the implementation of the Mataura FMU/NOF process.

The basis of my recommendation of a 10-year term is the assumption that the Mataura FMU/NOF process would be largely completed by 2026 (if not before), utilising the new freshwater planning process in the Act. This would then give Alliance a period of three to four years to plan for and implement any upgrades/changes required to give effect to the outcomes of the Mataura FMU/NOF process as the basis for a future consent application. This is consistent with the lead in time that the Applicant indicated was required to plan, fund and implement major plant improvements[70].

I acknowledge that an alternative approach is to grant the consent for a moderate term, subject to review conditions that enable the discharge volumes and standards to be amended – and that this would provide greater certainty of continued operation for the Applicant. While I consider that this is a valid approach, in my opinion it has a greater risk that the current discharge to the Mataura River will be locked in for a longer period of time with potential implications for the implementation of the Mataura Catchment FMU/NOF process.

After substantial consideration, I consider that a shorter consent duration is appropriate to reflect the clear intent of the NPS FM to improve degraded water quality and enable the Mataura FMU/NOF process to be efficiently implemented.

[70] See Attachment 4, page 5.

Plant Upgrade Timeframes

I have recommended substantially shorter timeframes (than those proposed by the Applicant) for all proposed upgrades targeted at improving discharge quality and reducing adverse effects. The primary basis for this is that in my opinion, these upgrades are required to be consistent with the provisions of the relevant statutory instruments – including to ensure that the gateway tests of section 104D of the Act are met – and to reduce adverse effects.

I accept that the timeframes I have proposed have been made in the absence of information on the financial implications for the Plant, and expect that the Applicant will comment on the affordability and practicality of these timeframes. However, my basis for my proposed upgrade timeframes are as follows:

Intake screen replacement

It is not apparent why the Applicant needs two years to implement what is identified in the evidence of Ms Bennett to be in line with currently available best practice guidelines – consistent with Policy 18 of the PSWLP and policies within Te Tangi a Tauira. I concur with Ms Bennett that a period of one year should be adequate to plan and undertake such a measure.

Microbial contaminants/E.coli

The water quality and public health technical reviews concluded that the discharge of treated wastewater contributes significantly to *E.coli* concentrations in the Mataura River, reductions in microbial contamination concentrations were a priority and that a precautionary approach to public health risk should be adopted. I accept this advice and consider that a shorter timeframe to address this issue as a priority. Furthermore, I consider that a short timeframe is necessary to ensure that the requirements of section 104D of the Act can be met and to contribute measurable to improving water quality and progressing towards achieving the Mataura 3 water quality standards.

Given the priority of this issue, which based on the advice of Environment Southland's experts is the highest priority improvement measure, I have proposed a period of one year to install UV treatment – which I understand from the pre-hearing meeting to be largely a 'bolt-on' system that does not require additional pre-treatment of the wastewater. As above, the Applicant can advise if this is not feasible, and what alternative timeframe is more appropriate.

Full biological treatment

Biological treatment will reduce nitrogen loads (including ammonia), TSS and further reduce microbial contaminants. On the basis of:

- The moderate cumulative effects of nutrients on the Toetoes Estuary, which is in a declining state;
- Policies seeking improved and best water management practice, noting that Ms Andrew advises that the current discharge is not best practice for wastewater discharges;
- The Mataura 3 water quality standards; and
- Potential risks to public health/contact recreation values and the implications for public health monitoring and management.

I consider it is necessary for implementation timeframes to be as short as is practicable and have proposed a five year timeframe. The need for further improvements beyond this point, including implementation of alternative discharge and treatment options, can then be determined in the context of the objectives, limits and timeframes established for the wider Mataura FMU.

I appreciate that the timeframes I have proposed are substantially shorter than those proposed by the Applicant. In part, this results from a different opinion as to the extent of effects that are required to be addressed, the regional plan framework in respect of the management of adverse effects and expectations regarding best practice and the direction provided by the recently gazetted NPS FM.

I acknowledge that the proposed upgrades are costly. Accordingly, I consider the Applicant should provide more evidence on whether the recommended upgrade works and timeframes are feasible to achieve, and if not, why these cannot be achieved. Should all of the upgrades not be able to be practicably achieved in the timeframes I have recommended, then I advise that I consider UV disinfection to be the most urgent and necessary to align with the statutory framework and reduce adverse effects on human health/contact – a compulsory national value.

4.2 Weir use and Damming/Diversion Consents

4.2.1 Recommendation

I recommend that the applications:

Land Use Consent To use land for an existing weir and hydro race structure in the Mataura River.

Water Permit To dam and divert water using an existing weir and hydro race structure

Be approved subject to the following:

- A term that expires on 7 November 2026;
- Conditions that are consistent with those on the current consent.

4.2.2 Key reasons for the recommendation

I acknowledge the Applicant's intent to secure long term consents for the weir to align with those of the take, and also that the take and discharge activities are facilitated by the weir diversion.

However, the weir damming and diversion appear to be more integrally linked to the hydro-generation assets on both sides of the river, consents for which expire on 7 November 2026. For example, the maximum flow through of the Alliance hydro-plant is 10 m^3/s, compared to a maximum total take of 0.3 m^3/s sought under the take applications. The MIE hydro-race throughput will be additional to this.

In my opinion providing for a consent with a duration that 'leap-frogs' the two hydro-generation consents, which I understand to be a primary purpose of the damming and diversion, is not consistent with sound resource management practice. In addition:

- The current consents were only recently determined (in 2019) for a period of 7.5 years;

- The separation of consent terms was a concern raised by the Hearing Commissioner in his decision on the existing consents for the weir (AUTH-20171566-01 AUTH-20171566-02), which led to a short term consent being granted for the damming and diversion and the hydro-scheme.
- Ms Bennett advises that no new information has been provided on fish passage and associated issues to support a longer consent term than that imposed by the Hearing Commissioner.

Accordingly, I consider that there is little basis to extend the duration of the diversion and discharge consents beyond that currently granted. As the consents for the damming and diversion of water by the weir form part of the existing environment, I recommend that the consent sought of the use of the weir and associated damming and diversion be granted on the basis of the conditions that are imposed on the current consents.

4.3 Draft Conditions of Consent

I have appended draft conditions of consent as Attachment 9. In preparing these I have had particular regard to:

- The draft conditions proposed by the Applicant;
- The conditions on the existing resource consent;
- The draft Environmental Management Plan provided by the Applicant;
- The cultural impact assessments and minutes of the meeting with Hokonui Rūnanga;
- Evidence of the technical peer reviewers.

In presenting the conditions, I have largely used those presented by the Applicant and have identified my changes and additions to those – as yellow highlight and by way of comment as to where various provisions were sourced.

I have attached the current weir damming and diversion consent conditions, but have not amended them (AUTH-20171566-01 AUTH-20171566-02).

I anticipate that the Applicant and submitters will comment on these and proffer alternatives. I intend to provide an updated draft set of conditions at the hearing, following my review of the Applicant and submitter evidence.

Ian Mayhew