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Under	the Resource Management Act 1991 ( <b>RMA</b> )
In the matter of	An application for replacement water and discharge permits for cooling and processing purposes at the Maitara Processing Plant
Applicant	Alliance Group Limited ( <b>Alliance</b> )

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**Statement of evidence of Doyle Richardson for Alliance Group Limited**

16 November 2020

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## Qualifications and experience

- 1 My name is Doyle James Richardson.
- 2 I hold a Bachelor of Science Degree majoring in Geography and a Post Graduate Diploma in Environmental Science from the University of Otago. I also hold a National Diploma in Wastewater Treatment through the Industry Training Organisation Connexis.
- 3 I have been employed at Alliance Group Limited (**Alliance**) for over four and a half years. In my current role as Group Environmental Manager I am responsible for overseeing all environmental issues for Alliance, including Alliance's seven processing sites. I have held this position for three and a half years. Prior to joining Alliance, I worked as a Principal Planner at Environment Southland for almost one year, an Environmental Scientist and Senior Environmental Scientist at Aurecon (Australia) for seven years, and Duffill Watts Consulting Group for three years in Palmerston North.
- 4 I have managed a number of consent applications in New Zealand including wastewater discharges to land, surface and groundwater abstractions, stormwater discharges and dam and diversions. I have also worked on many projects in Australia that required environmental impact assessments and approvals.
- 5 I maintain an overview of environmental legislative compliance at all Alliance sites. I provide technical advice to sites as required particularly in areas of air quality, water and wastewater.
- 6 I have primary responsibility for Alliance's continuing certification to the ISO 14001 Environmental Management Standard.
- 7 I have the responsibility of the resource consenting of the Alliance Maitai water take, treated wastewater discharge, cooling water discharge and dam and diversion, and I am authorised to give this evidence on behalf of Alliance. My management of this process commenced in October 2017. I have had extensive involvement in discussions with Environment Southland staff and key stakeholders/submitters in relation to these applications.
- 8 I have provided the specific Maitai plant knowledge required for the activity to be understood.
- 9 I have read and am familiar with the Assessment of Environmental Effects and technical reports attached to the AEE, and I have read the Section 42A Report and the reports and statements of evidence of others giving evidence, including:
  - (i) Willie Wiese
  - (ii) Danny Hailes

- (iii) John Kyle
- (iv) Adrian Low
- (v) Mark James
- (vi) Richard Montgomery
- (vii) Christopher Dada
- (viii) Azam Khan
- (ix) Peter Wilson
- (x) Keren Bennett
- (xi) Alice Andrew
- (xii) Marion Poore

### **Scope of evidence**

- 10 My evidence addresses the following matters:
- (a) Environmental management
  - (b) Application process
  - (c) Water abstraction for meat processing and truck wash
  - (d) Wastewater treatment and discharge
  - (e) Cooling water abstraction and discharge
  - (f) Proposed wastewater discharge limits
  - (g) Low flow contingency plan
  - (h) Stakeholder relationships
  - (i) Recreational users
- 11 I also provide comment on a couple of points in Dr Wilson's evidence.

### **Environmental management**

- 12 As discussed in the evidence of Mr Wiese, Alliance's environmental policy commits to the sustainable management of the natural and physical resources its operations depend on. In meeting this commitment Alliance's environmental management systems are certified to the ISO 14001 environmental management standard. Alliance strives to meet or exceed relevant regulatory requirements and to continually improve its environmental performance. Alliance's environmental management systems are concerned with more than just compliance with resource consent conditions, although this is of course a major consideration. Extensive process control, compliance monitoring and key performance indicator programmes are in place and these enable Alliance to measure our performance

and develop baselines for renewed improvement objectives and targets. These certifications, objectives and programmes are fully implemented at Mataura.

- 13 Mataura employs a site Environmental Manager. Their primary responsibility is to manage and report on compliance with resource consents, to manage the extensive environmental monitoring and key performance indicator programmes implemented for the site, and to identify opportunities for improvement in environmental performance.
- 14 Alliance Mataura has maintained a very good compliance record. If compliance issues (or site malfunctions that could potentially lead to a compliance issue) arise the Environmental Manager advises Environment Southland promptly and keeps them informed of relevant timeframes and corrective actions. At an operational level Alliance has a healthy relationship with Environment Southland, and we value the open communications channels that exist.

### **Application process**

- 15 Alliance approached preparing an application to renew Mataura's resource consents in a structured and methodical way. Structured preparatory work commenced in June 2017, using the extensive data the company maintains on operational aspects of the Mataura plant's activities, and the effects of those activities on the environment. This information has been shared with the Technical Working Party<sup>1</sup> for a number of years, including the details of the significant improvements that Alliance has made in regard to DRP and the resulting improvements in the Mataura River, but also the issues with *e. coli* and more recently ammonia/nitrogen. At the same time, Alliance has actively participated in the ongoing regional process of establishing new regional and freshwater management unit plans that address the need for improvements in water quality over time, as required by successive national policy statements.
- 16 The potential capital and ongoing operational costs associated with addressing these issues, along with ensuring Alliance understands all of the potential effects of its activities has meant that Alliance has undertaken an extensive and comprehensive evaluation of its activities to inform this application. I believe this was warranted given the significance of the Mataura plant to Alliance and the wider Southland community, and the significance of the water quality issues that the community is contending with in the Mataura FMU.
- 17 Alliance has engaged technical experts early to understand any gaps it may have had in its dataset and has shared these with the Technical Working Party. Alliance had general agreement with the Technical Working Party on the work required and the discharge options being assessed. Alliance has undertaken that work. The

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<sup>1</sup> The membership of the Technical Working Party is discussed at paragraph 52 of my evidence

findings of that work have been shared with them, including Alliance's proposed actions to address the issues that need to be addressed. Where Alliance believes it is warranted, it has adopted recommendations of these parties as described later in my evidence.

### **Water abstraction for meat processing and truck wash**

- 18 Alliance Matura is operating under existing resource consent AUTH-204126-V1 which permits the plant to take water from a water race fed by the Matura River, for meat processing.
- 19 Immediately upstream of the Matura Plant is an existing concrete U-shaped weir. Water is diverted by the weir along the true right bank of the river into a diversion channel adjacent to the Plant. This activity is authorised by Water and Discharge Permit AUTH-20171566-01 AUTH20171566-02.
- 20 The existing water abstraction permit authorises the taking of up to 35,600 m<sup>3</sup>/day of water from a water race fed by the Matura River. This is made up of 21,200 m<sup>3</sup>/day for cooling water and 14,400 m<sup>3</sup>/day for processing water.
- 21 Since the processing of sheep and rendering ceased at the Plant, the amount of water taken and used for processing purposes has reduced significantly from the amount provided for in the existing consent. This is reflected in the proposed conditions which allow only 8,000 m<sup>3</sup>/day of process water to be abstracted.
- 22 Water can be taken by 12 pumps for processing water, but one (number 18) is not currently connected to plant pipework. One of these pumps (Pump 1) is a dedicated truck wash pump. Appendix 1 provides a schematic layout of these pumps at the plant, while Appendix 2 provides details of each pump, including how the pump control mechanism operates.
- 23 It should be noted that both Appendix 1 and Appendix 2 include details of pumps (numbers 6 through 11) used for engine room cooling water and engine room condensing water. These are discussed further below.
- 24 A significant volume of the water abstracted (approximately 2,000 m<sup>3</sup>/day) is used in the wastewater treatment process. The water is used to generate whitewater, which is pumped into dissolved air floatation (DAF) tanks to assist in lifting solids to the surface of the tank, which can then be scraped off and removed from the wastewater. As identified by PDP in Appendix 8 (*Alliance Matura Plant – Water Use and Wastewater Management Resilience Assessment*) of the application, there is an opportunity to use recycled wastewater to generate this whitewater instead of raw river water. This is done at other Alliance plants and is an opportunity that Alliance wants to pursue noting that there are potential challenges with foaming at the point of discharge as described in the evidence of Mr Khan (para 42) and potential ammonia toxicity issues.

- 25 Alliance proposes to prepare a water saving strategy within six months of the commencement of the consent. The strategy will identify methods to enable the recycling of wastewater to be used as whitewater within the wastewater treatment plant so that water is used more efficiently. This will need to be done without increasing the contaminant load in the discharge when measured on a daily basis using the consented concentration limit and maximum discharge volume limit. It will also need to be done without giving rise to adverse toxicity and eutrophication effects on aquatic organisms within the mixing zone and downstream. The strategy shall include a new concentration limit and a review by a suitably qualified and experienced ecologist to assess the effects of the discharge to ensure it does not give rise to any unforeseen adverse toxicity and eutrophication effects on aquatic organisms within the mixing zone and downstream.
- 26 This strategy will be implemented within three years of the commencement of the consent alongside improved resilience measures described in the next section. Once implemented and trialling of the new system is complete, it will be reviewed by a qualified and suitably experience ecologist to ensure the changes to not give rise to any unforeseen adverse toxicity and eutrophication effect on aquatic organisms with the mixing zone and downstream. Proposed Conditions 8 and 9 in Mr Low's evidence outlines a strategy to do this.
- 27 Five of the processing water intake pumps (No. 1 – 5) are located in the hydro race and are fitted with screens with a 5 mm – 6 mm aperture size. The risk of fish entrainment into these pumps has been assessed by Dr James as relatively low compared to many intakes, due to high sweep velocities across the existing screens. Dr James has however recommended that screens with a 2 mm – 3 mm aperture size (or less) be installed to further reduce that risk. Alliance has adopted this recommendation and will install the screens within two years of the commencement of the consent. Remaining processing water intake pumps (No. 12 – 18) are located in a channel between the hydro race and the Plant. Fish and debris are prevented from entering this channel by a passive screen which has a bar spacing of 1.5 mm.
- 28 Despite the low risk of potential fish entrainment into pumps 1 - 5, Ms Bennett (paragraph 19) has questioned why a two-year timeframe was applied for when a shorter timeframe could be achieved. Alliance budgets for capital projects at the beginning of a season, so a new project like this would typically be budgeted for in the next financial year, beginning October 2021 unless there is a pressing need to do otherwise. In this case, the need to reduce the screen size does not appear to be a pressing issue to defer other projects for. Alliance has recently had a consent granted at the Lorneville Plant (AUTH-20158595-05) where a two-year timeframe for screen installation was a condition of consent. This timeframe is consistent with that.

## **Wastewater treatment and discharge**

- 29 Mr Khan provides a description of the existing wastewater infrastructure in his evidence including a summary of his resilience assessment. He describes two opportunities to improve the resilience of the wastewater treatment plant.
- 30 *Green waste stream cross contamination* – although Alliance comfortably achieves 100% compliance with the existing DRP limit of 14.4 kg/day, Mr Khan identified an opportunity to reduce the risk of intermittent overflow of the green waste stream into the non-green waste stream. Alliance has commenced work to address this issue and while not complete, it is mindful of what contributes to this issue, so actively monitors it to ensure the risk of cross contamination is reduced compared to before the issue was identified.
- 31 *Wastewater pipes in or above the hydro race* – there were a number of wastewater pipes that either traversed above or within the hydrorace presenting an unnecessary risk of pipe rupture resulting in an uncontrolled discharge of treated wastewater directly into the river. New pipelines have been installed and most wastewater sources have been diverted to the new pipework.

## **Cooling water abstraction and discharge**

- 32 The existing consents contemplated a take and discharge of up to 21,200 m<sup>3</sup>/day of cooling water at the site. This was slightly more than the total pump capacity of the primary condenser cooling water pumps installed in 2006 when applications for those existing consents were made (19,800 m<sup>3</sup>/day), and the 2006 applications explicitly contemplated that the pumps would be subject to change for maintenance and upgrade purposes.
- 33 Six unmetered pumps (numbers 6 through 11) are used for engine room condensing and engine room cooling. Appendix 1 provides pump numbers, makes, where they are used, capacities and operational comments are provided in Appendix 2.
- 34 Pumps 6, 7 and 8 are used to provide water to cool the refrigeration system (condenser pumps). At least one, and often two of these pumps operate continuously, as refrigeration operates continuously. Flow is on a variable speed control which fluctuates according to pressure demands. The third pump is a standby pump.
- 35 Pumps 9, 10 and 11 are used to supply water for engine room oil coolers. Pumps 9 and 10 operate on a variable speed control which fluctuates according to temperature demands. Pump 11 is a standby pump and it is started manually. Pump 11 is only operated when there are operational issues with Pumps 9 and/or 10.

- 36 The currently installed configuration could take up to 17,962 m<sup>3</sup>/day for cooling purposes, assuming any two of Pumps 6, 7 and 8 is operating, alongside Pump 11 and one of either Pump 9 or 10. Similar to the circumstances contemplated in 2006, and as has occurred in practice, the existing pumps will likely be subject to further change for maintenance or upgrade purposes over the term of a new consent. Alliance is seeking to retain the existing maximum daily take of 21,200 m<sup>3</sup>/day to allow this to happen without unnecessary restriction. Alliance notes that there is no environmental benefit to be gained by reducing this volume. 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. It is truly a non-consumptive take and changing the rate of take of this activity has no impact on river flows.
- 37 The six cooling water intake pumps are currently fitted with screens with a 5 mm – 6 mm aperture. Issues with these screens are the same as those described for pumps 1 – 5 in paragraphs 24 and 25, so I will not repeat these issues and responses here.

#### **Proposed wastewater discharge limits**

- 38 Alliance is proposing amendments to the pre-upgrade limits proposed in Appendix 1 of the AEE. Condition 2 included a 12-month rolling median of 5.5 g/m<sup>3</sup> for Total Phosphorus. This was based on an incomplete annual dataset for the 2018/2019 season where part way through the season the year to date median was above 5 g/m<sup>3</sup>. When looking at a 12-month rolling median (as proposed here), a limit of 5 g/m<sup>3</sup> can be achieved and is now proposed in the set of Conditions discussed by Mr Low.
- 39 Discussions with Fish and Game identified concern about the proposed DRP limit of 14.4 kg/day when Alliance is achieving lower discharge loads per day. While the 14.4 kg/day represents a significantly lower limit than what was being discharged pre the DRP improvements<sup>2</sup> at the site, there is opportunity to amend this to ensure this more closely reflects current operations. Therefore a 12-month median of 0.5 g/m<sup>3</sup> and a 95%ile of 1.5 g/m<sup>3</sup> is now proposed. Fish and Game are concerned that these further reduced limits still allow Alliance to discharge more than what is currently discharged, but it is important to note that DRP concentrations in untreated wastewater can be over 30 g/m<sup>3</sup> and in the most recent year where Alliance has a full data set for untreated wastewater the median was 12 g/m<sup>3</sup>. A 12-month median limit of 0.5 g means Alliance will be required to achieve a 96% reduction in DRP (approximately) from an untreated state versus the 97.5% which we are currently achieving. The proposed limits are not 'aim to achieve' limits, but limits that we always must comply with. While the margins may appear to be large

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<sup>2</sup> Alliance Mataura discharged of 88 kg/day of DRP to the Mataura River during the 2004/2005 season



when taking the view of Fish and Game, they are in fact small from an operational perspective. The proposed limits also go some way to locking-in the good progress that the plant has made in this regard.

- 40 Based on discussions with Fish and Game, a new DIN limit is proposed as this can cause nuisance algal growth as discussed in paragraph 63 of Dr James' evidence. A 12-month median of 40 g/m<sup>3</sup> and 12-month 95%ile of 60 g/m<sup>3</sup> is proposed and a post-upgrade 12-month median of 20 g/m<sup>3</sup> and 95%ile of 35 g/m<sup>3</sup> is proposed.
- 41 The evidence of Dr Wilson comments on the limits proposed and where needed, I respond to those here.
- 42 In paragraph 74 Dr Wilson says there are some differences in consent limits between the AEE and Draft EMP and this is shown in Appendix A of his evidence. In paragraph 74 he says load limits are omitted for all parameters except cBOD<sub>5</sub>. Section 3.2 of the Draft EMP describes the load limits proposed for Nitrogen both pre-upgrade (Page 5) and post upgrade (Page 7) so load limits as proposed in the AEE are included in the Draft EMP.
- 43 In paragraph 75 he goes on to say that omitting load limits is appropriate as concentration limits are simpler to assess for compliance, but that measures of discharge volume are still essential so that loads can be calculated when necessary. Paragraph 76 then describes a situation where loads would be controlled by volume limits and this is further elaborated on in the evidence of Ms Andrew (paragraph 22 to 25). Paragraph 25 of Ms Andrew's evidence says monthly or annual limits are needed so that the annual load does not substantially increase beyond what is currently discharged. Ms Andrew is using historical water use records to determine how this should be done.
- 44 I do not agree that it is simpler to combine a concentration limit with the variety of flow controls that Ms Andrew is recommending in her technical review. It is more complex and unnecessarily dictates how the plant can operate month by month when processing demand varies year to year due to a variety of factors. Examples of this include changing weather conditions, needing to slaughter animals due to disease outbreaks, restricted processing created by COVID-19 which needs to be recovered so that farms are not overstocked etc. All months are not used equally. In addition, Alliance understands that load impacts are something that occurs on a longer-term basis than a month, and to manage this it has proposed an annual load limit for Nitrogen and a cumulative load limit pre the biological treatment upgrade at Year 15. This approach is simpler and provides the plant the flexibility to manage its operation on a more appropriate time scale while managing the issues that need to be managed.
- 45 In paragraph 77 Dr Wilson queries why a load limit for cBOD<sub>5</sub> of 3,500 kg/day is not being reduced following the wastewater upgrade. A reduction in load will occur because of the upgrade so that load limit could be removed as it will be managed

by a combination of the reduced discharge volume limit and upper concentration limit for cBOD<sub>5</sub>.

- 46 In paragraph 78 Dr Wilson says that the TKN limit was reduced from a maximum of 200 g/m<sup>3</sup> and a consistently maintain limit of 100 g/m<sup>3</sup> in the AEE to a 12 month median and 95%ile of 60 g/m<sup>3</sup> and 80 g/m<sup>3</sup> in the draft EMP. Alliance has proposed a 12 month median and 95%ile of 60 g/m<sup>3</sup> and 80 g/m<sup>3</sup> and I can find no reference of the 200 g/m<sup>3</sup> and a consistently maintain limit of 100 g/m<sup>3</sup> for TKN in the AEE as indicated by Dr Wilson.
- 47 In paragraph 80 Dr Wilson identifies that the TSS limit post the biological treatment system referred to in Table 10 of the AEE was a 12-month median of 20 g/m<sup>3</sup> and a 95%ile of 40 g/m<sup>3</sup>. The proposed treatment will not achieve a limit of 20 g/m<sup>3</sup> and a 95%ile of 40 g/m<sup>3</sup>. This was incorrect and an annual median of 40 g/m<sup>3</sup> and 95%ile of 80 g/m<sup>3</sup> as per Condition 13 of the AEE Proposed Conditions (Appendix 1) and in the draft EMP (Table 2) is being proposed. As indicated in paragraph 53 of Dr Wilson's evidence, it is considered that the wastewater is 'substantially free' from suspended solids. Dr Jame and the proposed limit is a reduction on the current annual median of 67 g/m<sup>3</sup> and 95%ile of 100 g/m<sup>3</sup> in Table 3 of the AEE.
- 48 I note in Appendix A of Dr Wilson's evidence that he refers to pre-upgrade DIN 12-month 95%ile of 64 g/m<sup>3</sup>. This should be 60 g/m<sup>3</sup> as per the application and paragraph 45 above.

#### **Low flow contingency plan**

- 49 During times of extreme drought, when flows are low, farmers can often be forced to destock their farms, which leads to an influx in animals at Alliance's plants. It is therefore essential to enable Alliance's plants to continue to process stock in the interests of animal welfare during such periods.
- 50 To mitigate the effects of operating during low flows, the existing consent requires Alliance to prepare and implement a low flow contingency plan which describes the practicable measures to be taken by Alliance to minimise the abstraction of water during times when the flow of the Mataura River at the Tuturau recording site is less than 20 cubic metres per second. This will be retained.

#### **Stakeholder relations**

- 51 Communication with all stakeholders is a key component of Alliance's environmental programme and is a strong aspect of the Mataura Plant's relationship with its community and stakeholders. While there may not always be agreement, through consultation and communication Alliance has developed strong relationships with local authorities, organisations and individuals and in general receives strong community support as evidenced by the 207 submissions of support for this application.

- 52 The Technical Working Party (TWP) was established many years ago prior to the existing consent being granted. The TWP is made up of representatives from the following organisations:
- Alliance
  - Southland Fish and Game;
  - Department of Conservation;
  - Te Ao Marama Incorporated;
  - Hokonui Runanga Incorporated;
  - Public Health South;
  - Southland District Council;
  - Gore District Council; and
  - Environment Southland.
- 53 The Wyndham Angling Club was also formerly a member of the TWP but resigned in late 2017 and advised in a parting email that they believed the plant was achieving excellent results and they were confident that the plant was on track as far as the wellbeing of the Mataura River was concerned.
- 54 Details of consultation up to the lodgement of the application are discussed in Section 11 of the AEE. Alliance initiated consultation on these consents in October 2017. It commenced with meetings with the TWP and representatives of Environment Southland. As technical work and preparation of the AEE was nearing completion, individual meetings were held with key stakeholders to share findings of the technical assessment and details of the proposed application and to receive feedback. In addition, surveys of recreational users of the Mataura River were undertaken.
- 55 A community meeting was held in Mataura prior to the application being lodged. Invitations were posted to all letter boxes (approximately 700 leaflets) in the Mataura Township to hear about the work being undertaken to re-consent key activities at the Plant. An Attendance Register was completed by 16 attendees. A slideshow presentation was provided by key Alliance staff with details of the application and the preferred wastewater upgrade option included.
- 56 The application was publicly notified in October 2019 with the submission period extended to allow additional time for interested parties to provide more considered submissions. 211 submissions were received, with 207 in support and four opposed. Those in support included many employees and local businesses, with notable submissions of support coming from Mataura Angling Club, Mataura Community Board, Federated Farmers, Gore District Council and the Wyndham Angling Club demonstrating that many people support the plant and the

improvements proposed. The four submitters opposed to the application were Fish and Game Southland, Department of Conservation, Hokonui Runanga and Te Runanga o Ngai Tahu.

### **Hokonui Runanga**

- 57 As discussed by Mr Hailes, Alliance has made significant changes to the conditions included in the AEE based on consultation with Hokonui Runanga. I understand the views being expressed by Hokonui Runanga were supported by Te Runanga o Ngai Tahu and Te Runanga o Ngai Tahu were involved in reviewing information or opinions provided to Alliance by Hokonui Runanga. Key changes to the conditions are described below and in the evidence of Mr Low.
- 58 The consent term applied for had been shortened from 35 years to 25 years, so as not to be inconsistent with Iwi policy.
- 59 Conditions 15 to 17 require Alliance to invite Hokonui Runanga to work together for the preparation of a discharge method review at Year two, Year seven and Year 20. While Alliance does not believe an outcome different to what has already been identified as the BPO will be identified at Year two, because discussions to date have only been on a land-based disposal option being acceptable. As discussed in the evidence of Mr Khan and accepted by Ms Andrew, this is not currently practical. The focus of discussion to date has been on a different suitably qualified expert than who has already undertaken the work for Alliance, being PDP. Alliance believes there is more merit undertaking this at Year seven, prior to major expenditure and Year 20 prior to the expiry of the proposed consent and before the next round of consenting.
- 60 As a result of consultation with Hokonui Runanga Alliance proposes to develop a Kaitiaki Plan which includes a number of initiatives to improve the Maitai River and its surrounds. The Kaitiaki Plan reflects a more detailed Memorandum of Understanding that was developed separately to this process, and which was largely agreed between Alliance and Hokonui Runanga. The Kaitiaki Plan also addresses many of the recommendations of the Cultural Impact Assessment prepared by Aukaha and includes additional items that have been discussed since the preparation of the CIA. Work has already commenced on some of the activities identified in the Kaitiaki Plan condition, including access to Te Au-Nui-Pihapiha-Kanakana, a trap and transfer plan for tuna and an initial site visit by NIWA for research into kanakana. The s42A recommendation to grant a short term consent and to bring forward the upgrades has thrown this constructive work into confusion. I am hopeful that Alliance and Hokonui Runanga will get things back on track with the granting of a 25 year consent.

## **Department of Conservation**

- 61 Alliance has also met with Department of Conservation to discuss their concerns. These discussions primarily revolved around impacts on kanakana, consent term and upgrade timing. At the time of writing I understand that Department of Conservation were generally comfortable with the conditions we have developed and are offering here. As such, I was advised that Department of Conservation were looking to withdraw their right to be heard, but this had not been confirmed.

## **Fish and Game**

- 62 Alliance has also met with Fish and Game and while agreement has not been reached, Alliance has made changes to the offered set of conditions that attempts to address some of their issues. These being a revised DRP limit (discussed in paragraph 38), the introduction of a DIN limit (discussed in paragraph 39) and a shortening of the consent term from 35 to 25 years.
- 63 Dr James responds to other matters discussed including periphyton limits and receiving environment limits among other technical matters associated with water quality and ecology.
- 64 Mr Wiese provides a response to a requested shortening of the biological upgrade timing.

## **Recreational Users**

- 65 It was recognised early in the process of preparing this AEE that the recreation values of the Mataura River are high, particularly in respect of its fishery. As such, Alliance commissioned Rob Greenaway and Associates to complete a detailed assessment of the effects of the activity on those values, including interviews and engagement with key recreational users.
- 66 Consultation (including formal interviews) with key recreational stakeholders and users of the Mataura River was completed as part of that process. The interviewees provided a variety of views on the changes to the River's recreation values over time. While no-one interviewed would drink from the Mataura River below Cattle Flat, all agreed that the river's water quality was far better than in the 1980s when there were a variety of untreated municipal and industrial discharges occurring. Several respondents – mostly anglers – considered the water quality now to be quite good, but potentially of decreasing quality due to farming intensification. Others considered the water quality to be poor. Many noted a variety of sources of contamination, including farming and treated municipal wastewater, particularly at Gore. The Alliance discharge did not feature as a major issue for most respondents, but was noted by kayakers.

- 67 Opinions about the quality of the fishery also varied and the presence of the Plant's discharge does not appear to be having an adverse effect on people's use and enjoyment of the fishery. Most agreed that the mayfly rise on the Mataura River had declined in frequency and intensity, with several theories as to the cause. The most experienced angler on the river downstream of Mataura – with detailed angling diaries – considered the insect life in the river to be quite healthy, but that warmer summer temperatures (climate change) were confining the rise to evenings and night, were less frequent generally, and were occurring later in the 'summer' season ('May is the new April'). Warmer temperatures were also considered a cause in the change in the patterns of the hatch by other anglers, but nutrification and sedimentation and (therefore) fewer insects were also identified. Opinions about the number and quality of trout varied, with some considering the numbers and quality to be consistent, and others considering size, quality and numbers to have all declined. Some considered a reduction in trout size to be the result of a cleaner river. The change in the frequency, timing and duration of the mayfly hatch has influenced a change in fishing technique, with more nymphing over dry fly fishing.
- 68 Swimming appears to be, in the main, a very local activity with a small number of regular users – also influenced by the recent closure of the community swimming pool at Mataura. There appears to be no common local conversation about illnesses from contact with the river water, and bathing water quality reports issued by Environment Southland do not appear to affect many swimmers' choices. The results of the QMRA report are also important when considering the effects of the Plant's discharge on swimming as discussed by Dr Dada.
- 69 The contribution of the discharge and water take to adverse effects on recreation in the Mataura River in respect of the above are very slight and subsumed by the many other sources of nutrification and contamination, however Alliance understand that it has to its part to reduce key contaminants in its discharge as part of catchment wide initiatives.

#### **Dr Wilson's Evidence**

- 70 In paragraph 47 and repeated in paragraph 89 Dr Wilson advises that the load generated from the plant is disproportionate to other catchment land uses and activities. No detail is provided to support this opinion, and I do not know what facts Dr Wilson is using to base his opinion on. It would be helpful if Dr Wilson could elaborate on how he has arrived at this conclusion so that Alliance can respond accordingly. What I would say is that Alliance Mataura's contribution to jobs, economic activity and the wellbeing of Southland communities is disproportionately large, compared with most other Mataura catchment land uses. On that basis Alliance Mataura's nutrient mass load contribution may not be disproportionately large as suggested by Dr Wilson.

- 71 In paragraph 47 Dr Wilson argues that the nitrogen load discharged from the plant is not negligible as described in the application, but then goes on to say in the next paragraph that any measurable reduction will only be achieved if the quality of all discharges are improved. This infers that an improvement in the Alliance discharge on its own will not be measurable at catchment scale. Consequently, Alliance consider our contribution to the current nitrogen load is negligible when viewed at a catchment scale. Alliance is not saying though that it should maintain existing nitrogen levels. Ahead of most contributors of nitrogen in the catchment, Alliance is volunteering a major upgrade that will significantly reduce its contribution. If others in the catchment were to achieve similar proportional reductions, the resulting environmental improvement would be significant.
- 72 In paragraph 49 Dr Wilson states “there is no specific removal of nitrogen from the wastewater stream”. To provide some further context here, the wastewater treatment plant is designed to remove suspended solids from the wastewater before the wastewater is discharged. Through this process a significant amount of organic nitrogen is removed meaning that the existing plant does remove nitrogen. A review of TKN (which makes up the large majority of TN) sampling results pre-treatment and post-treatment shows that last season there was an approximate 80% reduction in TKN post treatment. This is shown in the table below and is similar in other years.

**Table 1 TKN Concentrations in Alliance Mataura’s Wastewater Pre and Post Discharge**

Date	Pre-treatment concentration (TKN g/m <sup>3</sup> )	Post-treatment concentration (TKN g/m <sup>3</sup> )
30/10/2019	114	25
27/11/2019	167	34
23/12/2019	176	40
23/01/2020	250	20
20/02/2020	230	44
19/03/2020	230	42
14/05/2020	160	43

11/06/2020	210	42
9/07/2020	190	30
6/08/2020	170	51
18/08/2020	170	51
03/09/2020	160	36
<b>Average</b>	<b>185</b>	<b>38</b>

### Conclusion

- 73 Alliance takes its environmental management responsibilities seriously. This is evidenced by our externally certified Environmental Management System and our commitment to maintain a compliant operation.
- 74 The application process has been detailed and thoroughly considered, commensurate with the scale of the operation that we are managing and the potential significance of our environmental impact. Alliance is proposing to do what is needed to address the environmental effects of its operations as far as practically possible and if all other stakeholders in the catchment committed to delivering what we intend to deliver over the term of this consent, Alliance is confident that the improvements across the catchment would be substantial.
- 75 Alliance has worked hard on key stakeholder relationships and as a result the business is well supported and relied on as evidenced by large number of submissions in support for our application. This includes the support of key users of the river.
- 76 I believe we are proposing a comprehensive work programme that covers a wide range of activities which will contribute to the betterment of the catchment and ultimately users of the river, while at the same time ensuring the business is able to continue to operate and deliver essential services and benefits to its farmer shareholders and the wider community.



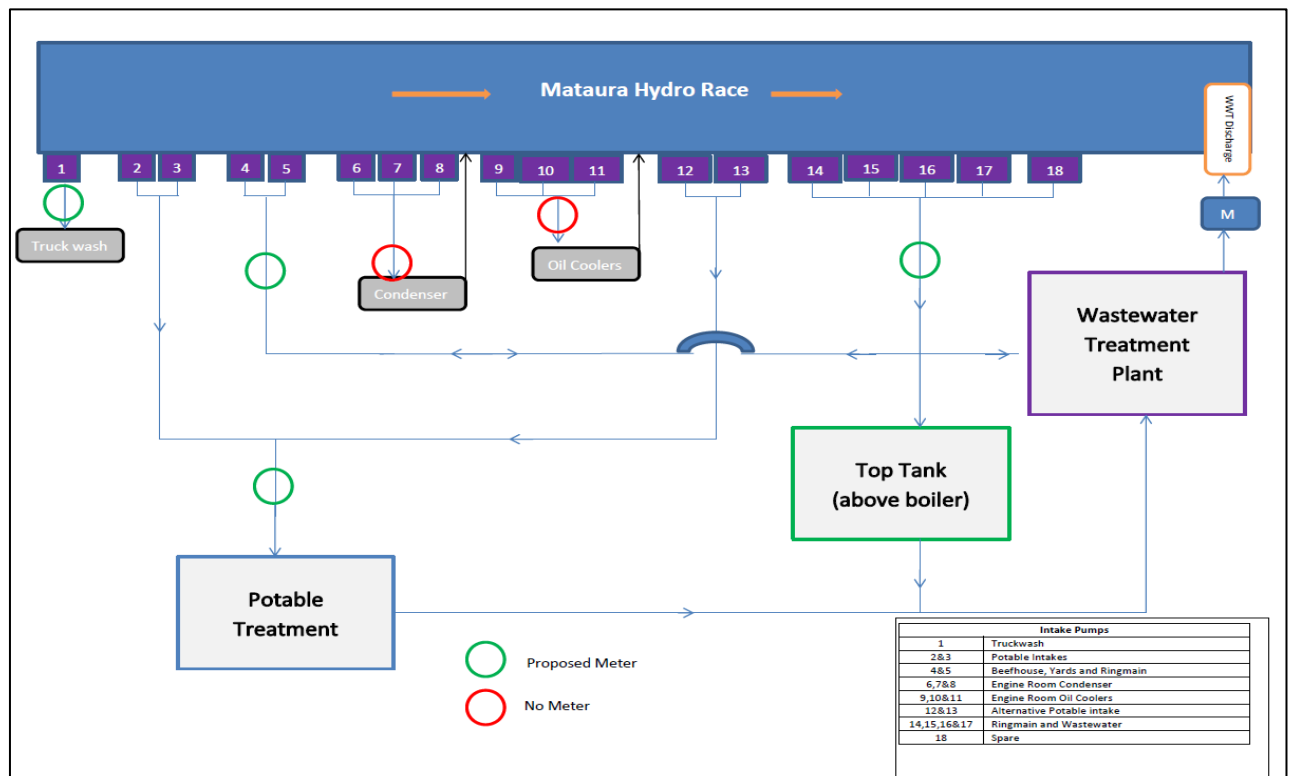
77 I acknowledge that the Mataura River is a particularly important place for Ngai Tahu and Hokonui Runanga as discussed in the evidence of Mr Hailes, and we have worked particularly hard with them, as they have with us, to try and land a resolution that both parties can move forward with. I am hopeful that will still come to fruition with a suitable consent that allows us to deliver on what we said we would deliver.

A handwritten signature in black ink, appearing to read 'Doyle Richardson', with a stylized, cursive script.

**Doyle Richardson**

16 November 2020

# Appendix 1: Water pump schematic for Alliance Mataura.



## **Appendix 2: Alliance Mataura intake pump details**

Pump	Make <sup>1</sup>	Use	Pump capacity (m <sup>3</sup> /hr)	Pump capacity (m <sup>3</sup> /day)	Pump control mechanism
1	Grundfos CR5-22	Truck wash	5.7	136.8	Controlled by a manual isolator i.e. This pump is manually turned on when washing a truck via a hose.
2	Ajax 5LS 18.5kw	Potable Intake	275	6600	Operator manually selects and starts the pump when required (i.e. when water levels are declining in the storage tanks).  Only one potable intake pump is used at a time.
3	Ajax 5LS 18.5kw	Potable intake	275	6600	The selected pump operates until a high-level control/switch in the water treatment plant tanks automatically turn it off.  Storage tanks are also fitted with a low-level switch which will turn a pump on if the operator is not present. This is not often used.
4	Grundfos	Beefhouse, Yards and Ringmain	219	5256	One of these two pumps is a duty pump and one is a standby pump.  One pump will turn on, when water is used, from pressure switches detecting a drop in pressure.
5	Grundfos	Beefhouse, Yards and Ringmain	219	5256	Water use will fluctuate depending on demand.
6	Grundfos	Engine room Condenser Pump	270	6480	At least one, and often two of these pumps operate continuously, as refrigeration operates continuously. Flow is on a variable speed control which fluctuates according to pressure demands. The third pump is a standby pump.  It should be noted that water taken via these pumps is returned to the river immediately, i.e. as pump speed increases, the discharge volume increases.
7	Grundfos	Engine room Condenser Pump	270	6480	
8	Grundfos	Engine room Condenser Pump	270	6480	
9	Grundfos	Engine room Oil Coolers	58.4	1402	At least one of these operates continuously.

Pump	Make <sup>1</sup>	Use	Pump capacity (m <sup>3</sup> /hr)	Pump capacity (m <sup>3</sup> /day)	Pump control mechanism
10	Grundfos	Engine room Oil Coolers	58.4	1402	Pumps 9 and 10 operate on a variable speed control which fluctuates according to temperature demands.
11	Ajax 4is	Engine room Oil Coolers	150 (estimate)	3600 (estimate)	Pump 11 is a standby pump and it is started manually. Pump 11 is only operated when there are operational issues with Pumps 9 and/or 10.
12	Chesterton	Alternative Potable Intake	200	4800	<p>These alternative potable intake pumps are used at times when the Mataura River water is dirty. The operator manually selects and starts these pumps when required (i.e. when water levels are declining in the storage tanks and the river is dirty).</p> <p>Only one potable intake pump is used at a time.</p> <p>The selected pump operates until a high-level control/switch in the water treatment plant tanks automatically turns it off.</p> <p>Storage tanks are also fitted with a low-level switch which will turn a pump on if the operator is not present. This is not often used.</p>
13	Chesterton	Alternative Potable Intake	200	4800	
14	Chesterton 45kw	Ringmain and Wastewater	200 (estimate)	4800	
15	Chesterton 75kw	Ringmain and Wastewater	200 (estimate)	4800	
16	Thompson	Ringmain and Wastewater	150	3600	<p>The number of pumps required to operate depends on the size of pump selected. Generally, only one pump is required to meet water demands. The Chesterton 75kw is the pump most commonly operated.</p>
17	Grundfos	Ringmain and Wastewater	200 (estimate)	4800	
18	Grundfos	Spare			This pump is not currently connected to plant pipework.

