Memorandum

To: Alex Erceg, Southland Regional Council

From: Doyle Richardson, Alliance Group Limited

Date: 9 August 2019

Re: APP – 20191339 Further Information Request under Section 92(1) of the Resource Management Act 1991

INTRODUCTION

In response to the questions 1 - 4 contained in Council's letter dated 5 July 2019 requesting further information on APP – 20191339, Alliance Group Limited (Alliance) provides the following further information.

As has already been discussed with you, the cultural impact assessment requested in question 5 of your letter is still being completed and it will be provided to you when it is finalised. Our response to question 6, which is intimately intertwined with cultural impacts and the cultural impact assessment, will also be provided at that time.

RESPONSE TO QUESTIONS

1. Clarification of your discharge volumes.

Alliance is seeking resource consent to take up to 8,000 cubic metres per day (m^3/day) of process water and to discharge the same amount of treated wastewater into the Mataura River. This is described in Section 4.2 of the AEE and is set out in the proposed conditions. Table 5 of the AEE, and the Freshwater Solutions and Streamlined Environmental Reports included in Appendix 2 and 3 of the AEE, incorrectly references 14,400 m^3/day of process water being abstracted and wastewater being discharged (this is the volume allowed by the current consent). The adverse effects on the environment of taking and / or discharging 8,000 m^3/day are the same of less than those of taking and / or discharging 14,000 m^3/day.

2. An explanation of how the water intake pumps operate, such as, how they are activated and when they are activated.

There are 18 pumps that supply cooling water and process water to the plant. The layout of these is shown in Figure 1 below. Details of each pump, including how the pump control mechanism operates is provided in Table 1 which follows Figure 1.

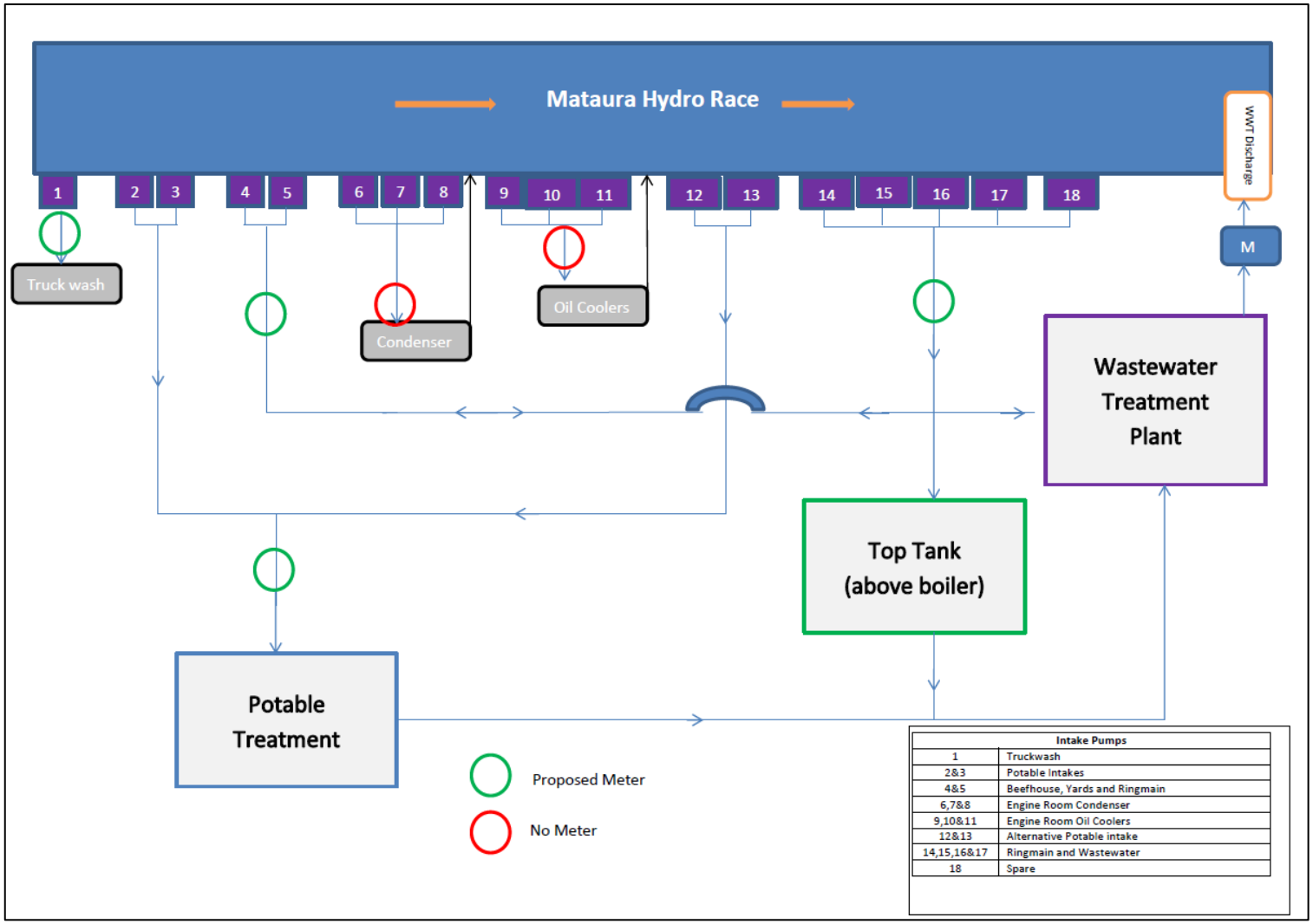

Figure 1:Water pump schematic for Alliance Mataura.

Table 1: Alliance Mataura intake pump details.

Pump	Make[1]	Use	Pump capacity (m^3/hr)	Pump capacity (m^3/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. 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.
3	Ajax 5LS 18.5kw	Potable intake	275	6600	
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. Water use will fluctuate depending on demand.
5	Grundfos	Beefhouse, Yards and Ringmain	219	5256	
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.
7	Grundfos	Engine room Condenser Pump	270	6480	

Pump	Make[1]	Use	Pump capacity (m^3/hr)	Pump capacity (m^3/day)	Pump control mechanism
8	Grundfos	Engine room Condenser Pump	270	6480	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.
9	Grundfos	Engine room Oil Coolers	58.4	1402	At least one of these operates continuously. 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.
10	Grundfos	Engine room Oil Coolers	58.4	1402	
11	Ajax 4is	Engine room Oil Coolers	150 (estimate)	3600 (estimate)	
12	Chesterton	Alternative Potable Intake	200	4800	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). Only one potable intake pump is used at a time. The selected pump operates until a high-level control/switch in the water treatment plant tanks automatically turns 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.
13	Chesterton	Alternative Potable Intake	200	4800	
14	Chesterton 45kw	Ringmain and Wastewater	200 (estimate)	4800	These pumps are set up in parallel. While the plant is operating, pumps are manually selected to start and stop.

Pump	Make[1]	Use	Pump capacity (m^3/hr)	Pump capacity (m^3/day)	Pump control mechanism
15	Chesterton 75kw	Ringmain and Wastewater	200 (estimate)	4800	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.
16	Thompson	Ringmain and Wastewater	150	3600	
17	Grundfos	Ringmain and Wastewater	200 (estimate)	4800	
18	Grundfos	Spare			This pump is not currently connected to plant pipework.

3. Confirmation of whether or not there is water storage on-site, and if so, how much.

The potable water treatment plant has two storage reservoirs, with a storage capacity of 722 m^3 and 1,000 m^3.

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 water

Two water take permits have been applied for. One is for the Take and Use of Process Water and the second is for the Take and Use of cooling water. Each is addressed below.

Process Water

Is Process water use in the Alliance Mataura plant reasonable and efficient?

Pattle Delamore Partners (PDP) has completed a comprehensive assessment of water use efficiency at the Plant. The results of that work are set out in PDP's Report *Alliance Mataura Plant – Water Use and Wastewater Management Resilience Assessment* (the PDP Report) a copy of which is provided in Appendix 8 of the AEE.[1]

PDP undertook a survey of water use and calculated that during peak processing times water use of approximately 5.24 m^3/animal processed (equivalent to 5,554 m^3/day when processing 1,062 cattle) is expected. However, when white water (used for processing wastewater) is removed, the PDP Report identified that water use at the Plant is approximately 3.33 m^3/animal processed. The PDP Report identifies that this is slightly higher than the common industry water use rate in larger meat export plants (approximately 2.7 m^3/animal per animal processed), but that the reason for this is the additional tripe processing undertaken at Mataura. Rather than process inefficiencies. When this additional processing is accounted for the Alliance Mataura process water usage compares well.

As described in Section 9.2.2 of the AEE, PDP have identified the opportunity to reduce water use by using recycled white water in the wastewater treatment plant. However, for reasons outlined in Section 9.3.1 of the AEE, this has implications for discharge quality which need to be carefully considered to avoid unforeseen adverse toxicity and eutrophication effects on aquatic organisms within the mixing zone and downstream. Further details can be found in Sections 9.2.2 and 9.3.1 of the AEE. A Water Saving Strategy is proposed, as per proposed Condition 6 set out in Appendix A of to the AEE, to address this water use.

Is the volume of water applied for reasonable and efficient?

The existing resource consent authorising the take and use of process water contemplates abstraction of 14,400 m^3/day. As set out above water use is tightly controlled at the Plant and in turn Alliance is in the position to only seek 8,000 m^3/day in this application (6,400 m^3/day less than currently consented), with the expectation that this may be further reduced within the first three

[1] See Appendix 8 of the AEE.

years of the new consent term by implementing a Resilience and Water Saving Strategy and reducing white water (see proposed conditions 6 and 7 for the wastewater discharge permit in Appendix 1 of the AEE).

The maximum daily take of processing water sought in the application (8,000 m^3/day) is more than the volume taken and used at the plant since it ceased processing sheep and lamb in 2012 as per the Plant's compliance reporting (maximum 7,602 m^3/day / 95th percentile 5,815 m^3/day), and more than the typical daily use expected by the PDP Report during high processing periods (5,554 m^3/day).

This headroom is to accommodate expected increases in the number of stock processed at the plant as it builds momentum as a specialist processor of beef, and to accommodate expected changes to the plant operation in response to hygiene and market requirements. A good example of this is the potential for the United States to introduce a hot wash of beef carcasses as mandatory to allow continued export of product to that country. While exact volumes are not known at this time for this potential project, a bobby calf wash, which would be much smaller than a cattle wash, has recently been added at Lorneville. This required an additional 520 L/minute to run, or 500 m^3 day. A cattle wash could require two to three times more water (potentially 1,500 m^3/day). Alliance needs to have the flexibility to change its operations in this way to operate competitively in the processing market. The small amount of headroom allowed for in the consent does not contemplate Alliance relaxing water efficiency practices at the plant and any new or changed processes would be installed with water efficiency in mind. This is required as part of the Alliance Utility Use Key Performance Indicators Programme, and Alliance's track record at Mataura whereby water use has consistently been less than allowed by its existing consents is proof of this. Efficiency of use will also be front of mind given the large capital spend proposed for the wastewater treatment plant upgrade, noting that the size (and in turn cost) of that upgrade is intimately tied to the volume of water the wastewater treatment plant is required to manage.

Cooling Water

The existing resource consents contemplated the take and discharge up to 21,200 m^3/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^3/day), and the 2006 applications explicitly contemplated that the pumps would be subject to change for maintenance or upgrade purposes.[2]

As was expected, since 2006 the various pumps have been reconfigured and upgraded. There are now six unmetered pumps which are used for engine room condensing and engine room cooling. Pump numbers, makes, where they are used, capacities and operational comments are provided in Table 1 above.

[2] See page 10 and 11 of *Alliance Group Limited Mataura Plant: Application for resource consents to take water and discharge cooling water. Application and Assessment of Environmental Effects. 29 August 2006*.

The currently installed pump configuration could take up to 17,962 m^3/day for cooling water purposes (assuming any two of Pumps 6, 7 and 8 is operating, alongside Pump 11 and one of either Pump 9 or 10).

However, like the circumstances contemplated in the 2006 application, and occurred in practice, the existing pumps will likely be subject to further change for maintenance or upgrade purposes over the term of the new consent. Alliance is seeking to retain the existing maximum daily take of 21,200 m^3/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.