

The Hearing Commissioners

18 July 2016
9.00 am

Staff Report for Hearing

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

Hearing of Application – APP-20158595

Alliance Group Limited

Compiled by Sarah Smith, Consents Officer

- Hearing:** The hearing is scheduled to commence at 9.00 am on Monday, 18 July 2016 in the Council Chambers, Environment Southland, corner of Price Street and North Road, Waikiwi, Invercargill.
- Application:** **Alliance Group Limited** has applied for resource consents to discharge treated wastewater and domestic sewage to water, discharge treated wastewater to land, discharge waste activated sludge (WAS) to land and WAS and stockyard solids to an on-site monofill, discharge treated wastewater to land for temporary storage purposes, discharge contaminants to air (combustion products from on site boiler operations; odour), abstract and use surface water from the Oreti River, and to disturb the bed of the Oreti River in order to undertake periodic maintenance and clearance work associated with the water intake structure.
- Notification:** The application was publicly notified on 16 April 2016 and six submissions were received. Three submitters wish to be heard.
- Executive Summary:** This is an application for an air discharge permit, discharge to water permit, discharge to land permits, water abstraction permit and a land use consent relating to the operation of a meat processing plant (and ancillary activities). The report is summarised as follows:
1. the receiving environment for the treated wastewater discharge to water is riverine with subsequent discharge into an estuarine environment. Both environments have degraded water quality from various sources, including the applicant's current discharge;

2. the key issues are:
 - lack of certainty surrounding the effects of the proposed wastewater treatment upgrade, given the actual treatment option has not been finalised and the actual reduction in nitrogen in the discharge is not currently known. This applies to the discharge of treated wastewater to the Makarewa River;
 - the long time period (15 years) before any improvement in the quality of the discharge to the Makarewa River occurs;
 - the proposed upgrade is likely to result in maintenance, but not improvement of water quality in the Makarewa River;
 - the proposed upgrade is likely to result in a reduced nutrient load to the New River Estuary;
 - the proposed in-river limits are “bottom line” standards, with no indication that the proposed discharge quality will result in in-river water quality being improved over and/or above them;
3. there is considerable uncertainty around the effects of the discharges to the Makarewa River post-upgrade and the proposed length of time before the discharge quality is improved;
4. improvement in in-river water quality above “bottom line” requirements is required well before the proposed 15 year time period proposed in the application, in order to assist in meeting national and regional water quality targets;
5. the discharge to air, water abstraction, land use for maintenance activities associated with the abstraction, temporary wastewater storage and discharge of wastewater to land consents could be granted subject to imposition of recommended conditions and mitigation measures proposed by the applicant being implemented;
6. the discharge of treated wastewater to water consent is recommended to be granted for a short-term (five years);
7. if the Commissioners were to grant a longer consent term, shorter timeframes for selection and implementation of the wastewater upgrade (total period of eight years) and a maximum consent term of 15 years are recommended.

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) to assist in the hearing of the application for resource consents made by Alliance Group Limited. Section 42A allows local authorities to require the preparation of such a report on an application for resource consents and allows the consent authority to consider the report at any hearing.

The purpose of the report is to assist the Hearing Commissioners in making a decision on the application.

1.2 About the author

My name is Sarah Smith. I am a consultant Consents Officer employed by the Southland Regional Council since 2014.

I hold the qualification of a Bachelor of Technology, majoring in Environmental Engineering, from Massey University. I have over 20 years experience in various sectors of the environmental science and management fields including domestic and industrial wastewater treatment, land application of wastewater, air quality, land contamination assessment and resource consent application processing.

I have had experience in the meat and by-products processing industry in New Zealand at the following sites - Lowe Walker Hawera; Taranaki By-Products (Taranaki), Richmond Awatoto; Hawke's Bay Protein (Napier) and Alliance Levin (Horowhenua). I processed the renewal of the consent to discharge contaminants to air from the Alliance Maitua plant (Southland) for the Council in 2015.

I have been involved with the application since it was lodged and received by the Council. I have also visited the site.

1.3 Information relied on in preparation of this report

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

- resource consent application including AEE and all reports
- further information requested under Section 92(1) of the RMA
- technical review of the application completed under Section 92(2) of the RMA
- Resource Management Act 1991
- National Policy Statement for Freshwater Management 2014
- New Zealand Coastal Policy Statement 2010 (NZCPS)
- Regional Policy Statement 1997 (RPS)
- Proposed Regional Policy Statement 2012 (notified version) (PRPS)
- Regional Water Plan 2010 (RWP)
- Regional Coastal Plan 2013 (RCP)
- Regional Effluent Land Application Plan 1998 (RELAP)
- The Proposed Water and Land Plan 2016
- Te Tangi a Tauria (Iwi Management Plan) 2008
- Air Quality Plan for Southland 1999 (AQP)
- Proposed Regional Air Plan for Southland (2014) (PRAPS)

- Other relevant regulations

2. The Application & Procedural Matters

2.1 The proposed activities

Applicant: Alliance Group Limited
 Application: Resource consents associated with the operation and upgrade of the Alliance Lorneville meat processing factory

Alliance Group Limited (the applicant or Alliance) is proposing to upgrade its wastewater treatment facility for its meat processing plant at Lorneville. As part of the upgrade, several key consents for the site are being replaced. The applicant has requested 35 year terms for all of the consents. The application involves eight different activities. Brief outlines of each activity are provided below. Full details of the proposal can be found in the appended application.

Discharge to water (treated wastewater and domestic sewage)

Activity	Location	Map Reference	Legal Description
Discharge treated wastewater from the plant and treated domestic sewage from Wallacetown to the Makarewa River via the Boiler Ditch	Oreti River	NZTM 2000 1237823E, 4856200	River adjacent to Section 55 Block XIV Invercargill Hundred

The applicant is proposing to upgrade its wastewater system. The current system consists of initial treatment in a series of anaerobic and aerobic treatment ponds (lagoons) which remove 80% of organic material. This is followed by treatment within mechanically and naturally aerated ponds. Wastewater is then discharged to the Makarewa River via a ditch (known as the Boiler Ditch). The proposal is to continue to utilise this system, but to upgrade it to provide increased treatment to a portion of the total effluent flow prior to discharge.

The aim of the upgrade to the wastewater system is to reduce the levels of ammoniacal nitrogen in the wastewater discharge and subsequently in the Makarewa River. This will be achieved by separating the high and medium strength effluent streams (25% of total effluent flow; 75% of total nitrogen load) for targeted nitrogen removal.

The new treatment system is likely to include anaerobic treatment, aerobic treatment via a biological nutrient remover reactor, secondary clarification and discharge of treated effluent back into the existing treatment system after the anaerobic lagoon. As part of this process, waste activated sludge (WAS) will be generated, which will comprise of anaerobic lagoon solids and WAS.

The applicant has indicated that the final upgraded treatment design will not be finalised until five years after the consent granting date. The applicant has proposed that major upgrades will not be operational until 15 years after the consent granting date.

A resource consent is therefore sought to discharge treated wastewater from the site and domestic sewage from Wallacetown to the Makarewa River via the Boiler Ditch. The maximum rate of discharge is 22,730 m³/day. After the upgrade, the volume of the discharge to water is likely to remain the same. However, the quality of the discharge will improve. The rate of discharge per second and week varies

depending on the processing requirements of the plant. This discharge includes domestic sewage from the neighbouring town of Wallacetown, which is pumped to the applicant’s wastewater treatment facility for treatment.

Discharge to land (wastewater)

Activity	Location	Map Reference	Legal Description
Discharge treated wastewater to land	Crowe Road	NZTM 2000 1239227E, 4855589N	Lots 32 and 33 Block II DP 6, Lot 3 DP 10900 and Part Sections 35 and 36 Block XIV Invercargill Hundred

Replacement consent is sought to discharge 3,000 m³ of treated wastewater to 100 hectares of land via K-line irrigation at a rate of 5 mm/hour. It is proposed that a nitrogen loading rate of 450kg/ha/yr be applied to the discharge. The wastewater is treated wastewater from the plant, which contains suspended solids, BOD, ammoniacal nitrogen, nitrogen, phosphorus and faecal coliforms.

Irrigation to land occurs periodically as part of the current wastewater treatment process. This is typically 50 days over the processing season (summer and early winter). This is in order to reduce the volume of wastewater discharged to water. Until such time as the proposed upgrade to the wastewater system is complete, the applicant wants to be able to continue to discharge to land. However, after the upgrade, the applicant is proposing to surrender the consent.

Discharge waste activated sludges to land and to a monofill

Activity	Location	Map Reference	Legal Description
Discharge waste activated sludge to land and waste activated sludge and stockyard solids to an on-site monofill	Crowe Road	NZTM 2000 1239227E, 4855589N	Lots 32 and 33 Block II DP 6, Lot 3 DP 10900 and Part Sections 35 and 36 Block XIV Invercargill Hundred

A new consent is sought to discharge BNR biosolids to land and to discharge BNR biosolids and stockyard solids to an on-site monofill. The discharge of the stockyard solids to land is authorised under consent AUTH-206363 and is not being replaced as part of this application.

The biosolids will be generated as a result of the operation of the upgraded wastewater treatment system primarily by inclusion of a biological nutrient removal (BNR) reactor. It is proposed that the biosolids will be discharged to the land that currently receives the liquid wastewater. The BNR biosolids will have been dewatered and will contain solids, BOD, ammoniacal nitrogen, nitrogen, phosphorus and faecal coliforms.

It is proposed that the BNR biosolids will be applied at an annual loading rate of no greater than 250 kg N/ha/yr (total nitrogen per hectare). If applied at the 250 kg loading rate, then 23 tonnes of BNR biosolids will be discharged to land at 18% solids content. The discharge of the BNR biosolids to land will be undertaken twice a year and only in specific weather conditions.

If the BNR biosolids and the stockyard solids (discharge authorised under AUTH-206363) cannot be discharged to land, then the applicant will discharge them to a new monofill. This monofill will temporarily store the dewatered biosolids.

Discharge treated wastewater to land (temporary storage)

Activity	Location	Map Reference	Legal Description
Discharge treated wastewater to land for temporary storage	Crowe Road	NZTM 2000 1238030E, 4856089N	Part Section 45 Block XIV Lorneville Hundred

Replacement consent is sought so that the applicant can discharge treated wastewater to land for temporary storage purposes. During periods of low river flow the applicant may need to discharge treated wastewater from one of its aerobic ponds to a storage area. The storage area is 8.3 hectares and provides 83,000 m³ of storage (five days of wastewater at peak production or 10 days if the volume of wastewater discharge is reduced). A buffer of 300 mm would be maintained between the top of the wastewater and the lip of the pond. When conditions in the Makarewa River become suitable to resume the direct discharge to water, then the stored wastewater would be discharged to water. The wastewater would be discharged back into treatment pond 5 by gravity at a maximum rate of 9,000 m³/day and then into the Makarewa River.

The applicant’s current consent for temporary storage has not been utilised in the past 13 years. However, it is an important part of its contingency plans for the site. The wastewater will be treated but contain suspended solids, BOD, ammoniacal nitrogen, nitrogen, phosphorus and faecal coliforms.

Discharges to air

Activities	Location	Map Reference
Discharge to air of odour associated with plant operations and odour from the current and proposed wastewater treatment plants	Lorneville	NZTM 2000 1239527E, 4856706N
Discharge to air from on site boiler operations		

Replacement consent is sought to discharge the following to air:

- discharges from the boiler operations;
- discharges of odour associated with the existing operations at the plant including stockyards, rendering and fellmongery;
- discharges of odours associated with the current wastewater treatment process; and
- discharges of odour associated with the upgraded wastewater system and disposal of BNR biosolids.

The applicant has two coal-fired boilers on-site. These are fuelled by lignite coal from New Vale Mine. These boilers produce hot exhaust air streams containing combustion products and particulates. The main portion of the exhaust consists of nitrogen and residual oxygen. The primary products of combustion are carbon dioxide, sulphur dioxide, nitrogen dioxide and water vapour. There is also a range of products of incomplete combustion that will be discharged i.e. volatile organic compounds, carbon monoxide, nitrogen oxide and nitrous oxide. The boilers operate at varying rates, depending on

the rate of processing at the plant. They are used to supply hot water and steam for meat processing, including rendering.

Odour will be discharged to air from various sources and processes. These include blood processing, fellmongery and soup stock facilities as well as the stockyards. The current wastewater treatment facility is also a source of odour, with the main source being the anaerobic pond. It is also anticipated that odours will arise from the new wastewater system as a result of the treatment of the wastewater and the BNR biosolids disposal.

Take and use surface water

Activity	Location	Map Reference	Legal Description
Take and use 22,500 cubic metres per day of surface water from the Oreti River at Lorneville	Oreti River	NZTM 2000 1236113E, 4858300N	Hydro and Crown Land Block XVI New River Hundred

Replacement consent is sought to abstract and use surface water from the Oreti River. The water abstraction is relative to the processing requirements of the plant. The rate of take will be 260 litres per second, with a maximum volume of 22,500 m³ being taken per day. The water will be stored prior to use. This can be achieved as the applicant has 20,000 m³ of storage available in existing reservoirs. The water is used for processing activities on the site.

Bed disturbance (Oreti River)

Activity	Location	Map Reference	Legal Description
Disturb the bed of the Oreti River to undertake periodic maintenance and clearance of debris to maintain a water intake structure and channel	Kirkbridge Street, Wallacetown	NZTM 2000 1236011E, 4858401N	Section 93 Block XVI New River Hundred and Lot 1 DP 8017

A new consent is sought to disturb the bed of the Oreti River in order to undertake periodic maintenance and clearance work. This is to ensure that the water intake structure for the surface water abstraction is kept clear. The maintenance work will be undertaken annually and also after flood events to remove debris.

The applicant is seeking a 35-year term for all consents.

2.2 Regional planning framework

Resource consents are required under the Regional Water Plan for Southland (RWP), Regional Effluent Land Application Plan (RELAP) and the Regional Air Quality Plan for Southland (RAQP).

RWP

- Discharge of treated wastewater directly to water is a **discretionary activity** under Rule 2(b).
- The discharge of treated wastewater directly to land in circumstances where it may enter water is a **discretionary activity** under Rule 2(b).

- The discharge of BNR biosolids and stockyard solids to the monofill is a **discretionary activity** under Rule 56.
- The abstraction of surface water from the Oreti River is a **discretionary activity** under Rule 18(e).
- The bed disturbance activity is a **discretionary activity** under Rule 47.

RELAP

- The discharge of the treated wastewater as biosolids to land is a **discretionary activity** under Rule 5.4.6.

RAQP

- The discharge to air of odour and contaminants is a **discretionary activity** under Rule 5.5.2.

Proposed Southland Water and Land Plan (pWLP)

The proposed Southland Water and Land Plan (pWLP) was notified by the Council on 3 June 2016. The rules within this plan which relate to water quality have immediate legal effect. However, as the plan is in the submission phase, the weight attributed to these rules is limited. The relevant rules of this plan are:

- discharge of treated wastewater directly to water is a **non-complying activity** under Rule 6;
- the discharge of treated wastewater directly to land in circumstances where it may enter water is a **non-complying activity** under Rule 34(b);
- the discharge of BNR biosolids to land and the discharge of BNR biosolids and stockyard solids to the monofill is a **discretionary activity** under Rule 45;
- the abstraction of surface water from the Oreti River is a **discretionary activity** under Rule 49(c);
- the bed disturbance activity through the maintenance of the intake structure is a **restricted discretionary activity** under Rule 66(b).

Section 88A of the RMA provides that where an application for resource consent has been made and where the activity status is altered after the application was first lodged as a result of a proposed plan being notified, that the application continues to be processed, considered and decided as an application for the type of activity that it was for at the time the application was first lodged.

Overall and applying Section 88A, the application is considered to be a **discretionary** activity.

Under Section 104B the Council may grant or refuse consent for a **discretionary activity**, and if it grants the application, may impose conditions under Section 108 of the RMA.

2.3 Further information request

Further information was requested from the applicant on several occasions. The further information requested covered various aspects of the discharge to water, discharges to land and air. This information is included in the appendices.

...

2.4 Notification and written approvals

The application was publicly notified on 16 April 2016, for the following reasons:

- the risk of harm resulting from any adverse effects that may occur, is significant;
- **Council** has some uncertainty about what the effects of the activities on the receiving environment are likely to be given the upgrades are not planned for another 15 years;
- the effects of the discharge to air activity are likely to be more than minor beyond adjoining landowners;
- the water that is being abstracted from the river is likely to have more than minor effects on water quantity, instream life, ecosystems and habitats;
- the effects of the various discharges to land and water are likely to have more than minor effects on the receiving environment;
- the application is inconsistent with some provisions of the RPS, PRPS and RWP;
- a request has been made for the consents to be granted for a 35 years period. This is a significant consent period.

The above decision to publically notify the application was made under Section 95A(4) of the RMA.

Six submissions were received. There were two submissions in opposition, three submissions were in support and there was one neutral submission. Pursuant to Section 37A(4)(b)(ii), the applicant agreed to a time extension for a submission received one day after the closing of the submission period.

... The submissions are included in the appendices, and are summarised as follows:

➤ **Fish and Game New Zealand, Southland Region**

Jacob Smyth, on behalf of the Fish and Game New Zealand, Southland Region, submitted that Fish and Game oppose the application for numerous reasons including:

- ◆ inadequate proposed monitoring of effects on receiving water quality, particularly nitrogen discharges (including ammonia), dissolved oxygen, E Coli, visual clarity and pH;
- ◆ concerns about the proposed increased mixing zone size in the Makarewa River;
- ◆ concerns about the delay in implementation of improvements to the wastewater treatment system;
- ◆ insufficiently robust review conditions for wastewater discharge consent;
- ◆ inadequate proposed fish screening on the Oreti abstraction intake;
- ◆ length of consent terms applied for; and
- ◆ the application being contrary to numerous provisions of the Resource Management Act, New Zealand Coastal Policy Statement, the National Policy Statement for Freshwater Management, Regional Water Plan and the Regional Policy Statement for Southland.

Fish and Game New Zealand wished to be heard in support of its submission.

➤ **Te Ao Marama Inc**

Stevie-Rae Blair, on behalf of Te Ao Marama Inc (TAMI), submitted in opposition to the application.

TAMI acknowledges the consultation process that has been undertaken by the applicant. TAMI appreciated being able to consult kanohi ki te kanohi (face-to-face meetings with the applicant's staff), and the ability to provide a Cultural Values Report. TAMI has a clear understanding of the proposals within the applicant's application and proposals.

Key aspects of the agreed position between the applicant and Iwi are:

- ◆ principally support the primary wastewater treatment upgrade;
- ◆ Iwi has a strong preference for land disposal of all wastewater and avoiding human waste discharges to water. However, Iwi accept that these preferences are not practicable in this case;
- ◆ the applicant has committed to an environmental monitoring plan, a habitat enhancement plan, annual monitoring reports, pre- and post-upgrade aquatic biological and fish health surveys, ongoing Iwi consultation, a wastewater treatment upgrade plan, continual improvement, avoidance of fish or eel stranding within the water tale channel or on the riverbanks, enabling practicable access to the applicant's land, post-treatment upgrade review and participation in a catchment-wide water quality approach.

The TAMI management board provided its support, in principle, for the proposed primary wastewater treatment upgrade but will not support a 35 year term. A 25 year or less term is more acceptable.

Te Ao Marama Inc wished to be heard in support of its submission.

➤ **Public Health South**

Jo Grimwood and Heather Clark, on behalf of Public Health South (PHS), made a neutral submission to the proposal. PHS has been actively involved in the Technical Working Party (TWP) established in late 2013. PHS considers that the opportunity to be involved in pre-application consultation has been valuable.

PHS has supported, in principle, the proposed upgrade of the wastewater treatment at the Lorneville Plant, in particular the anticipated reduction of nitrate loading into the Makarewa River. While PHS has some concerns regarding the 35 year consent period, AGL has shown a long-term commitment to maintain or improve water quality within the Oreti catchment. This includes the upgrade of the current treatment plant, monitoring of the discharge as well as the Makarewa River upstream and downstream of the mixing zone.

Review conditions that focus specifically on the impact the applicant's discharge has on *E. coli* levels in the Makarewa River have also helped alleviate PHS concerns.

PHS is neutral, being only concerned to ensure that if consent is granted, any conditions of consent are adequate to protect the health of people and communities.

Public Health South did not wish to be heard in support of its submission.

➤ **Anna Napier**

Anna Napier submitted in support of the application.

Ms Napier stated that the applicant is a significant employer and directly/indirectly creates employment across Southland and beyond. She stated that employees and management take their environmental obligations seriously and considered that the proposed upgrades to environmental systems are appropriate to mitigate the impacts of the applicant's activities.

Ms Napier requested that the Council approve the six consents for the full 35 year terms requested. She did not indicate if she wished to be heard or not.

➤ **NZ Meatworkers Union (Alliance Lorneville Sub-Branch)**

The NZ Meatworkers Union (Alliance Lorneville Sub-Branch) submitted in support of the application, for the following reasons:

- ◆ the plant is critically important to the Southland region. It provides Alliance with its only sheep and lamb processing facility and any reduction in the plant's capacity for lambs and sheep would see this livestock processed outside the region;
- ◆ the plant is currently operating and is located in the proximity of a trained and experienced workforce, as well as providing opportunities for first time employees. While the plant is located outside the Invercargill City boundary the majority of the labour pool resides in Invercargill. Other manufacturing jobs available in or close to Invercargill are limited;
- ◆ the plant is a significant employer in the Southland region, employing 1,057 full time equivalent staff at the plant. Approximately \$71 million is paid out annually to employees. In addition to the direct economic contribution of employment, the plant also spends approximately \$18 million annually on goods and services;
- ◆ the Union considers that the applicant has fulfilled its obligations under the Resource Management Act 1991, and has appropriately identified and managed any potential effects that might arise;
- ◆ the Union supports Alliance's proposal to upgrade its wastewater treatment plant to improve water quality downstream of its discharge within 15 years of the commencement of the consent. The Union also acknowledges and supports Alliance's proposal to further reduce particulate emissions from the coal fired boilers within five years of the commencement of the consent;
- ◆ the application for 35 year consents is supported to give greater certainty for employment in the future and to ensure the economic benefits arising from the plant's on-going operation are maintained.

The Union seeks that the application is granted with the term and conditions, as described in the application. The Union wished to be heard in support of its submission.

➤ **Southland District Council**

Southland District Council (SDC) submitted in support of the application.

The Wallacetown community wastewater scheme, completed in 2007, collects and pumps community wastewater to the Alliance treatment plant at Lorneville. Being able to discharge to the site provides security for the Wallacetown community, both financially and environmentally. SDC has a contract with Alliance through to 2041 to receive the wastewater from the Wallacetown community and is overall supportive of the applications.

Any alternative option would have required construction of a dedicated wastewater treatment facility which would have added significant financial burden onto the Wallacetown community

and may have made the decision to proceed with construction more difficult. The resource consents currently applied for are important to Wallacetown's community's ability to continue to dispose of its wastewater.

SDC acknowledges that the applicant is a significant employer not only within the Southland district but also the region, generally not only at its freezing works but also with the support of industries and local communities. Whilst this should not mean that consents are automatically granted, SDC believes it should be factored into the overall consideration of these applications. SDC supports the granting of the resource consents subject to the imposition of appropriate conditions to ensure environmental effects are minor. SDC did not wish to be heard.

The applicant opted not to hold a pre-hearing meeting.

3. Assessment

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. Section 104(1) of the Resource Management Act, 1991, states:

- (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; 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.*

Those matters which are relevant for this application are discussed in the following sections as follows:

- description of the receiving environment;
- assessment of the actual and potential effect of the activity on the environment;
- relevant provisions of the relevant planning documents including the Regional Water Plan (RWP) and the Regional Effluent Land Application Plan (RELAP); the Air Quality Plan for Southland; and proposed Water and Land Plan;
- relevant provisions of the Southland Regional Policy Statement (RPS) and proposed Regional Policy Statement (PRPS);
- relevant provisions of the National Policy Statements and National Environmental Standards;
- Part 2 of the RMA.

3.1 Description of the affected environment

The subject site is the applicant's Lorneville meat processing plant. Alliance is a large meat processing and exporting company. This site is located at Lorneville, 7 km north of the Invercargill City CBD and 2 km east of Wallacetown. The applicant owns 306 hectares of farmland around the site, where stock is kept and where treated wastewater and WAS will be discharged to land.

The Makarewa River runs along the border of the site and the site is located in the Makarewa River catchment. This catchment covers 991 km² and is extensively developed. Other land uses include agriculture and forestry. The site is surrounded by rural land use activities.

The site's location falls within the Oreti Freshwater Management Unit (FMU) area, in terms of the Council's catchment limit setting process under the proposed Water and Land Plan.

There are several affected environments for the application activities, which are described below.

Discharge to air (odour and boiler emissions)

The boundary of the Invercargill airshed is 1.5 km south-east of the site. Based on Council monitoring of the Invercargill airshed and on-site monitoring, the applicant considers that the background PM₁₀ 24 hour average concentration for the area surrounding the plant is 15µg/m³. Estimates of the typical background NO₂ concentrations for the area surrounding the plant are 15µg/m³ for 1 hour and 24 hour average time periods. It is also estimated that the typical background SO₂ concentrations for the area surrounding the plant are 5µg/m³ for 1 hour and 24 hour average time periods.

The nearest sensitive receptor is 700 metres east of the site boundary and nearest odour source. This is a residential dwelling.

Discharge to land (wastewater)

The wastewater will be discharged to 100 hectares of farmland, which the applicant owns. This land is to the south of the treatment facility, on the opposite side of the access road into the processing plant. Surrounding land use is rural and a golf course. Bateman's Drain runs through the irrigation area.

The soils under the irrigation area are predominantly sandy loams. These are Edendale silt loams, Waikiwi modified silt loams and Dacre silt loams. The landscape classification of the site is a combination of artificially drained land and land with impeded drainage. Nitrates in the groundwater under the site are classified as being at the modern day background (0.4-1.0 mg/L).

Discharge treated wastewater to land (temporary storage)

The affected environment for the temporary storage of treated wastewater is 8.3 hectares of land in the form of a temporary storage pond. The depth of this pond is generally one metre and over. This pond is located to the immediate south of the primary treatment facility. The Makarewa River runs along the western edge of this pond.

The applicant considers the mapped groundwater contours show a general south-westerly flow direction from the plant (influenced by drainage of groundwater into Bateman's Drain). To the west of Bateman's Drain, a more westerly groundwater flow component occurs (influenced by drainage of groundwater into Boiler Ditch and the Makarewa River). Groundwater also flows in a north-westerly direction towards Boiler Ditch and the direction around the existing ponds is unknown but is likely to be towards Boiler Ditch to the south-east and also towards the Makarewa River.

Discharge to land (waste activated sludge and stockyard solids)

As part of the upgraded treatment facility the applicant is proposing, WAS will be discharged to land and also to a monofill. The affected environment for the WAS application is the area of the site that currently receives wastewater in a liquid form (100 hectares of land), plus an additional 172 hectares of

land. The disposal area covers the farm land to the southern end of the site, land adjoining Steel Road, land adjoining the treatment lagoons and an area adjoining State Highway 9. This land is generally flat to undulating, with two terraces.

The soils within this disposal area are:

- well drained Edendale (36 hectares);
- well and moderately drained Waikiwi and Woodlands soils (118 hectares);
- imperfectly drained Mokotua soils (16 hectares); and
- poorly drained Thornbury, Makarewa and Dacre series soils (56 hectares).

Three waterways (open drains) run through and along the south-western discharge area, with the Makarewa River to the west of the disposal area. The groundwater under the site is classified as being in the Lower Oreti, Makarewa and Waihopai groundwater zones. Recharge to these aquifers is typically by rainfall infiltration, with any water in the aquifers typically heading towards the river systems.

The site for the proposed monofill is one of the redundant treatment lagoons. One of these lagoons would be adapted to temporarily store and potentially hold the WAS long term. It is not proposed to line this lagoon with any form of synthetic liner. These lagoons are located adjacent to the Makarewa River. They have a capacity of 18,000 m³.

Discharge to water (treated wastewater and domestic sewage)

The applicant currently discharges treated wastewater from its site and treated domestic wastewater from Wallacetown to the Makarewa River, 5 kilometres upstream of the confluence with the Oreti River. This point of discharge is not changing. The New River Estuary is 14 km further downstream of the confluence.

After being treated in a series of seven ponds (located on the western side of the site) the primary receiving environment for the discharge is a ditch. Wastewater is pumped to the ditch via a pipe. This pipe will be under the surface of the water in order to reduce the creation of foams. From the boiler ditch, the wastewater enters the Makarewa River.

The upper Makarewa River is characterised by high nutrient concentrations, low visual clarity and low ammoniacal nitrogen concentrations. Macroinvertebrate community index scores (for the river at the Wallacetown Lorneville Highway Bridge) indicate that water quality is “fair”. Fish diversity is also “low”.

The lower Makarewa River has been modified by historical drainage activities and flood protection works. Water quality upstream and downstream of the plant is characterised by high nutrient concentrations, high faecal bacteria, low clarity and high ammoniacal nitrogen. Biological communities above and below the plant are dominated by macrophytes, water and habitat tolerant benthic invertebrate taxa and a diverse fish community. The stretch of the Makarewa River where the discharge enters the water is tidally influenced. Mixing of the discharge in the Makarewa River is dependent on the flow in the river and the tidal conditions.

The Makarewa River is used recreationally, with a locally significant brown trout fishery that has low to moderate usage.

The discharge into the Makarewa River then enters the Oreti River and ultimately the New River Estuary.

The Oreti River is 195 km long. The Oreti River supports healthy native fish fauna and is a nationally significant brown trout fishery. The Oreti River is classified as a *Lowland Soft Bed* river. It is subject to a Water Conservation Order, enacted in 2008. The lower Oreti catchment is characterised by moderate nutrient concentrations, moderate to low visual clarity and low unionised ammonia.

Both the Oreti River and New River Estuary are Statutory Acknowledgement Areas for Ngai Tahu.

Take and use surface water

Water will be abstracted from the Oreti River at a point 1 kilometre downstream of the Riverton-Wallacetown Highway Bridge. The mean flow for the river is 39.0 m³/s, the median flow is 27.6 m³/s and the seven day MALF 7.40m³/s. The water take is located in an embayment on the true left bank of the river. The embayment area is characterised by a silt bed and extensive macrophyte growth. In order to prevent fish species entering the intake structure, it is currently fitted with a coarse screen with bars spaced approximately 50 mm apart. A second screen with 16 mm diameter mesh is positioned 2 m behind the coarse screen.

Water is pumped to the water supply reservoir(s) at the plant, where around half of it passes through the water treatment facility before being used on-site. The water take and treatment system allow for checks for fish that have been potentially entrained at four points - the intake screen, the pump house, the reservoir and the water treatment facility.

There are several other surface water abstractions on the Oreti River. The closest abstraction is the Invercargill City Council’s abstraction from Branxholme.

The applicant proposes to alter the fish screen on the intake structure to reduce the potential for effects on native and non-native fish. Ecological monitoring indicates that the Lower Oreti (below the point of abstraction) is characterised by moderate benthic invertebrate community health and organic enrichment.

Bed disturbance (Oreti River)

The affected environment for the bed disturbance activity is the intake structure into the Oreti River. This structure is located on the true left hand bank of the Oreti River. The embayment area where water is abstracted is 45 metres long. It needs to be cleared regularly to ensure that the structure is free from gravel and debris.

3.2 Actual and potential effects (Section 104(1)(a))

Consideration of the following effects is required:

- positive effects, including economic;
- effects on water quality, including the potential for contamination of groundwater and surface water;
- soil health;
- effects on water quantity;
- effects on air quality;
- effects on cultural values; and
- effects on recreational users.

Positive Effects

The applicant is Southland’s largest employer, employing around 2,500 people seasonally. The meat industry is a partnership between farmers, processors and exporters. Most farms in Southland are owned and operated by farming families and without access to a local and large processing plant, costs associated with transportation and processing elsewhere would increase.

The plant employs around 165 full-time salaried staff and 1,702 seasonal workers at its peak in operation. This equates to 1,016 full-time equivalent staff. The applicant pays out \$71.4 million in wages and salaries per annum and spends an estimated additional \$17.9 million per annum in the Southland region on goods and services.

There are significant cost savings for local farmers having the continued ability to utilise the applicant’s processing plant. The applicant is a wholly farmer owned co-operative, with all profits returned to the company’s farmer shareholders with a portion retained for growth. Many of these shareholders are based in Southland. The direct and indirect economic and social effects arising from the ongoing operation of the applicant’s plant are considered to be significant.

Water Quality

Effects on Surface Water Quality

... The effects of the activity with regard to water quality arising from the discharge of treated wastewater will be discussed in detail below. Further context is provided in the appended application, technical reports and reports from the Council’s experts. These have not been repeated in full here.

The primary receiving environment for the treated wastewater discharge is the Makarewa River. Subsequent downstream receiving environments are the Oreti River and New River Estuary.

The Makarewa River water and sediment quality in the region of the applicant’s plant (immediately upstream and downstream) is characterised by high nutrient concentrations, high faecal indicator bacteria counts, low visual clarity, high ammoniacal nitrogen concentrations, generally moderate but occasionally low summer dissolved oxygen concentrations and pH that is suitable for supporting healthy biological communities. The soft sediment and tidal nature of the lower Makarewa River renders the river environs near the wastewater discharge unsuitable for sensitive invertebrate species.

The clarity of the lower Makarewa River is low due to various catchment scale influences. The lower Makarewa River in the vicinity of the discharge supports limited contact recreation and therefore the applicant has assessed the effect of the discharge on river clarity as not being significant.

Foams occur at times in the Makarewa River below the discharge, and have also been observed upstream of the plant. It is likely that a contributing factor to the generation of foams is the physical delivery of the discharge to the Makarewa River.

The current discharge can elevate faecal bacteria concentrations in the lower Makarewa River on occasions and in some years but in other years appears to dilute the contamination from microbial sources.

Reduction in surface water quality has the potential to impact on habitat, ecology and biodiversity through increases in in-stream and bank vegetation, and increased periphyton growth (due to elevated

organic loadings and nutrients). Increases in microbial pathogens can also impact on recreational opportunities, food gathering and human and animal health.

With regard to the effects of the proposed activities, the application notes that the key actual or potential effects arising from the existing discharge on water quality in the receiving environment are:

- increased ammoniacal nitrogen levels which can cause toxicity effects in biota in the river;
- increases in nitrogen and phosphorus which make a small contribution to increases in nuisance algae and eutrophication of rivers and the estuary;
- development of foams and scums impacting on aesthetics and recreational values;
- reduced water clarity which can impact on aesthetics, recreation, and ecological values; and
- increased microbial contamination that can impact on aquatic health, recreation and cultural values (including consumption of fish).

The application identified the key water quality parameters as being:

Ammoniacal nitrogen toxicity	Nutrient concentrations
Bacteria concentrations	Dissolved oxygen (DO) concentrations
Colour and clarity	Foams and scums
Algal growths	Benthic invertebrate community
Fish community	Cultural and recreational values

The application concludes that monitoring of the receiving river environment has not identified any measurable adverse effects, with the discharge currently meeting the required limits for temperature, pH, DO, BOD and nitrate toxicity. The applicant has concluded that these effects are minor.

Monitoring by the applicant has indicated that background bacterial concentrations in the Makarewa River, the lower Oreti River and the New River Estuary are elevated. The discharge contributes to increased faecal coliform concentrations in the receiving river environment. Monitoring results present in the application demonstrate that median faecal coliform counts were higher downstream of the discharge (compared to upstream sampling) on 44% of all sampling occasions between 2001 and 2014. The application also noted that annual median faecal coliform counts were higher at the upstream site (compared to the downstream site) on eight out of the 14 years analysed, indicating other sources are contributing to elevated faecal coliform levels.

The current consent requires that in-river clarity shall not be reduced by more than 20%, with this limit set to maintain visual clarity for clear river waters suitable for bathing. The AEE indicates that there was a consistent reduction in water clarity at the 350 m site downstream of the discharge, with the discharge reducing clarity >20% about 20% of the time, >33% about 5% of the time and >50% about 1% of the time. From this information, I conclude that the effects of the current discharge on water clarity are more than minor.

The application notes that measured data demonstrates that the current consent limit for ammonia is being met (a limit which reflects acute effects). The application notes that the measured values consistently exceed relevant chronic limits for ammoniacal nitrogen, so the application concluded that the discharge is potentially creating chronic effects on native in-river biota due to ammoniacal nitrogen, particularly within the mixing zone and the lower Makarewa River.

The application states that the plant's current wastewater discharge contributes 53% of total nitrogen and 68% of total phosphorus loadings in the lower Makarewa River.

The applicant has assessed that the treated effluent discharge on the New River Estuary provides a percentage contribution of total nitrogen and total phosphorus of 4% and 5% respectively. Therefore, the applicant's discharge is likely to be contributing to nuisance macroalgae cover in the New River Estuary.

The application notes that, over the previous 10 years, numerous investigations and studies in relation to its on-site discharges (including wastewater treatment) have been undertaken in order to identify improvement options. As part of its re-consenting programme for this application, the applicant has commissioned several investigations over the past four years. It is concluded that after 14 years of investigative work, that the applicant should have an excellent understanding of its effluent discharge characteristics and options to improve its quality.

The application acknowledges that the current discharge needs to be improved in respect of ammoniacal nitrogen. It is proposing to achieve this (via the upgrading process) to be able to meet a site-specific in-river ammonia target and enable the achievement of the attribute state bottom line value contained in the NPS-FW within the wider catchment. The application indicates that to meet the proposed in-river target, a reduction target of 75% (from 2012/13 season concentrations of discharge ammoniacal nitrogen) would be required. However, based on the current application, this improvement will not be mandatory (via a consent condition) until 15 years after the granting of the consent.

The Environmental Management Plan included with the application details the proposed post-upgrade discharge quality limits, which are noted in the plan as being unchanged from the proposed pre-upgrade discharge quality limits, excepting ammoniacal nitrogen and phosphorus. The upgrade will result in no improvement in post-upgrade discharge quality for contaminants other than ammoniacal nitrogen and phosphorus.

The applicant is not proposing any improvements in the microbiological quality of the discharge. The reasons given in the application is that the microbiological quality of the upstream environment in the Makarewa River is already poor, and that a catchment-wide approach to improving water quality is a more appropriate solution than requiring individual discharges to improve. This is of concern as elevated in-river microbial levels due to the impact of the applicant's discharge are likely to continue for a considerable period of time and even once the upgrade has occurred. Bacteria have the potential to cause human health issues directly through contact recreation and indirectly through contamination of fish and shellfish.

The applicant is proposing the following mitigation measures for its treated wastewater discharge into the Makarewa River:

- monitoring of the effluent prior to discharge to the Makarewa River for various physical and chemical attributes of the wastewater. The discharge will be required to comply with limits for BOD, Total Suspended Solids (TSS), TN, and TP;
- undertaking an upgrade of its wastewater treatment system, specifically targeting nitrogen removal in medium/high strength wastewater flows (25% of total effluent flow contributing 75% of total nitrogen loading in the effluent flow);
- post upgrade, a reduction in TN and TP limits to site-specific values that the applicant has derived;
- within 12 months of the upgrade commissioning, a review of the discharge limits. This review will set out any recommended changes to the prescribed limits for TN and TP in particular;
- within 10 years of the consent commencement, a review to determine whether it is necessary and practicable to further treat the discharge stream in order to reduce the microbial load;

- modifications to the outfall structures (sub-surface discharge) to reduce the likelihood of foams being created;
- monitoring of the Makarewa River at two locations (one new upstream location beyond tidal influence; one existing monitoring location), to demonstrate compliance;
- annual reporting of monitoring results to the Council, to assess overall compliance with the consent limits;
- a fish health survey prior and after the upgrade to determine any detectable improvement in fish health due to a reduction in ammoniacal nitrogen and nitrate;
- preparation of a Habitat Enhancement Management Plan, in consultation with Te Ao Marama Inc.

The application indicates that, after the proposed upgrade occurs, the discharge contribution to nitrogen loading on the New River Estuary would be reduced to 1.3% of the total nitrogen load to the estuary from 4% currently.

Dr Greg Ryder, a freshwater ecologist from Ryder Consulting Limited, was requested by the Council to provide comment on the application in respect of effects on surface water quality from the proposed wastewater discharge activity. His technical reports and evidence are appended. A summary of his comments is as follows:

- the discharge has a significant effect on lowering the visual clarity of the water below the outfall. The Makarewa River has low clarity even in the absence of the Lorneville discharge, and the discharge exacerbates this situation. The RWP has a water quality standard for the Makarewa River of >1.3 m for visual clarity (this applies to below median flow conditions). Monitoring by the applicant indicates that the median clarity of the river 350 m downstream of the discharge is 0.38 m. This represents another stress on an already degraded environment;
- the applicant considers that the appropriate water clarity change limit for the Makarewa River is 33%. Dr Ryder considers that this is inconsistent with Objective 4 of the RWP;
- it is not clear from the application whether the discharge is affecting the river's ability to meet the RWP minimum standard for dissolved oxygen saturation (>80%);
- the application indicates that discharge's total nitrogen and phosphorus contribution to the New River Estuary could be up to 6% and 7.6% respectively of the total nitrogen and phosphorus loads, which are reasonably significant for a point source discharge;
- the application states that the lower Makarewa River is highly modified and the current consent limit of 6 g/m³ is "conservative", and that the NPS-FM bottom lines attribute states for dissolved oxygen are considered appropriate. Dr Ryder does not agree that this limit is "conservative" with respect to aquatic health. The lower Makarewa River is degraded and suffers from low oxygen levels at times, even upstream of the applicant's discharge, but this does not justify further reducing oxygen levels;
- the applicant has not proposed an in-river faecal coliform limit (after reasonable mixing). At a median river flow (taken from the AEE as 7.65 m³/s) and maximum faecal coliform discharge concentration proposed by the applicant, the downstream faecal coliform concentration (after full mixing and assuming no attenuation) would be many times greater than the RWP standard (1,000 CFU/100 mL). This situation would be worse under low flow conditions;
- the applicant is proposing that the zone of reasonable mixing should be at the 350 m distance downstream of the outfall. Dr Ryder considers this is a considerable distance for a mixing zone in a river;
- the applicant considers that the appropriate water clarity change limit for the Makarewa River is 33%. Dr Ryder considers that this is inconsistent with Objective 4 of the RWP;
- the applicant did not offer an acute ammonia limit to avoid potential lethal effects within the mixing zone;

- the time until the applicant adopts the revised ammonia limits is of concern. The 15 year lead-in time to implement these improvements is assumed to be due to financial considerations, as this timeframe does not appear to be based on any particular ecological or water quality issue;
- the application indicates that discharge's total nitrogen and phosphorus contribution to the New River Estuary could be up to 6% and 7.6% respectively of the total nitrogen and phosphorus loads, which are reasonably significant for a point source discharge;
- the DRP concentration in the river 350 m downstream of the discharge point is typically an order of magnitude higher than that at the upstream control site. The median concentration at the 350 m site is high for South Island rivers, and is very high, relative to guidelines used to assess potential for nuisance algae and plant growth;
- the applicant has proposed a condition that would review the post upgrade limits for Total Nitrogen and Total Phosphorus. While this is a reasonable approach to maintaining an ongoing assessment of nutrient loads, this requirement would not be required until year 15 of the consent, and this delay appears to have no ecological justification;
- the application notes that modifications to the outfall structure has been undertaken which have reduced the likelihood of foams being created. Proposed conditions include regular (daily) monitoring for foams and scums when the plant is discharging to the river. Dr Ryder considers these measures are a satisfactory response;
- the recommended reduction in ammonia levels in the wastewater discharge will act to reduce the nitrogen nutrient loading to the lower Makarewa River and the New River Estuary, which is a positive outcome.

The potential adverse effects of the activity on the water quality in the Makarewa River, Oreti River and New River Estuary is a key issue for submitters and the Council. Submitters and the Council have concerns regarding the timeframes outlined in the application for the upgrading process, compliance with water quality standards and lack of certainty regarding improvement to current water quality.

The proposed upgrade timeframes outlined in the application are overly generous, given that there is a proposed further five year delay before the applicant's treatment option is confirmed, and a lack of improvement in discharge quality (and subsequent receiving environment effects) for a further 15 years from the grant of consent prior to the upgrade occurring.

Until the proposed wastewater system upgrade is implemented and operational (a 15 year period from consent granting date), the applicant is proposing to continue applying the ammoniacal nitrogen limit set out in its current consent (5.6 mg/m³). The current level of effects due to ammoniacal nitrogen (as described above and in the application) are likely to continue for a considerable period (15 years) until the upgrading process has been completed. Dr Ryder has commented that the 5.6 g/m³ concentration can be regarded as an acute level and compares poorly with the NPS-FM bottom line annual median concentration of 1.3 g/m³.

The proposed site-specific post-upgrade in-river targets specified in the application were developed by review of various guidelines and standards (including the NPS-FW, Class D standards, NIWA guidance and the RWP Lowland Soft Bed standards). A review of the proposed in-river limits indicate that the values selected are "bottom line" values for most parameters. The proposed limits do not provide for improvement in receiving water quality above the "bottom line" requirements. The application does not offer certainty that in-river water quality downstream of the discharge (after reasonable mixing) will be improved above the "bottom line" after the upgraded wastewater treatment facility is fully operational.

The applicant is proposing to achieve the NPS-FW ammonia value via use of the wider catchment. This approach disadvantages all other users within the catchment by effectively using all assimilative capacity within the catchment to enable a single discharger to meet its obligations under the NPS-FW.

The applicant has proposed a review as to further treatment of its effluent to reduce microbial load within 10 years of the discharge being granted. This review would take into account any changes within the receiving environment and would recommend whether upgrades are necessary for further treatment in order to reduce the applicant's contribution to the microbial load within the Makarewa River.

It is my view that this is not an appropriate approach, as all dischargers of contaminants into the Oreti catchment will be required to make a contribution to reducing the overall microbial load to the catchment in the near future, given there has been a clear indication of the expectations around improved water quality (as signalled by the NPS-FW and regional planning documents).

The proposed review is not adequate and effectively amounts to a “consent within a consent”, with insufficient certainty regarding any mitigation to be applied. Effects due to microbial contaminants will continue to occur at the same level as currently occurs for a considerable period of time (10 years), which has health implications for downstream users.

There is uncertainty surrounding effects, arising from the following matters:

- **the proposed treatment method to be used in the upgrading process** - the applicant has requested a period of five years in which to finalise the treatment process to be used in the upgrade but the final option to be selected is not clear at this time;
- **the actual reduction in total nitrogen discharged to the Makarewa River** - the application notes that there is a programme in place for progressive wastewater treatment upgrades, which would be expected to deliver a reduction in Total Nitrogen. It also states that that a reduction of 75% has been assumed, but notes that the actual magnitude of the reduction is unknown at present;
- **monitoring of effects** - for example, the ammonia levels included in conditions relating to ammonia monitoring pre- and post-upgrade are different types of values (pre-upgrade limits are absolute values whereas post-upgrade limits are based on averages of daily samples as well as an annual 95th percentile limit), which makes a direct comparison difficult and would lead to uncertainty around the effects of the measured levels.

Given the above, it is difficult to draw conclusions as to the level of future effects of the treated wastewater discharge to the Makarewa River.

Dr Ryder has recommended the following regarding proposed consent conditions:

- inclusion of a maximum limit for BOD concentration ($<2 \text{ g/m}^3$) at the boundary of the mixing zone;
- inclusion of an acute ammonia toxicity limit to protect against lethal effects for resident fish or fish migrating through the mixing zone;
- inclusion of whole effluent toxicity testing, using appropriate New Zealand freshwater species to provide a more accurate assessment of the potential effects of the discharge on Makarewa River biota;
- monitoring of clarity, as it is more informative than turbidity and is specified as a water quality standard in the RWP;
- “clarity tube” should be changed to “visual clarity”, with a footnote or advice note that visual clarity shall be assessed by the tube method;

- proposed benthic invertebrate monitoring should be targeted more at prolonged summer low flow periods when the discharge is still occurring, as these are “worst-case” conditions.

A proposed consent condition has been included which requires the applicant to consider the discharge quality, and consider potential options of improvement, once catchment limits for the Oreti FMU are imposed. The applicant had offered conditions which addressed this, but I have recommended an alternative wording, which I believe simplifies the reporting and implementation requirements around this issue.

Effects on Soils and Groundwater

... The effects of the activity with regard to soil and groundwater quality arising from land application of treated wastewater, WAS and the proposed contingency monofill and the temporary storage of treated wastewater will be discussed in detail below. Further context is provided in the appended application, technical reports and reports from Council’s experts. These have not been repeated in full here.

Groundwater

The applicant’s wastewater treatment ponds were established around 1968, and it is understood that no compacted clay or synthetic liner was installed. There is the potential for wastewater leakage from the ponds to underlying groundwater. The applicant has undertaken an investigation to assess this via installation and monitoring of five bores.

The assessment found that the wastewater discharge from the ponds is primarily directed toward the Makarewa River and is not having any significant impacts on groundwater to the south of the ponds. The applicant concluded that the ponds have a reasonable barrier, which is containing contaminants successfully. Any leakage from the ponds is likely to be directed towards the Makarewa River and would be identified during in-river monitoring. The effects from pond leakage on the Makarewa River are expected to be minor.

Nitrate-N leached from the wastewater areas in 2014/15 for Waikiwi soils was 15 kg N/ha and on average for all soils is about 14 kg N/ha in most years. The applicant’s monitoring of groundwater shows low to moderate Nitrate-N in downgradient bores but also detected low to moderate Ammoniacal-N in some bores, indicating that either reducing conditions exist or there has been leaching on Ammoniacal-N, with the latter more likely. Values are low compared to Drinking Water Standards. Overall, the effects of wastewater irrigation on groundwater are less than minor.

Soils

The applicant is proposing to upgrade its existing wastewater treatment facility. This will require that waste organic solids from the treatment process (BNR biosolids) are disposed to land, with disposal to an on-site monofill as a contingency option. Prior to land disposal, the applicant intends to dewater the organic material to mitigate against waterlogging, ponding and nutrient runoff.

The applicant is proposing to utilise 8.3 ha of land for emergency storage of treated wastewater when the ability to discharge treated wastewater to the Makarewa River is compromised due to drought and low flows. When river conditions return to normal (or appropriate to receive the discharge) the stored wastewater will be discharged to the river. This consent will apply both before and after the upgrade.

The applicant is proposing to continue to apply 3,000 m³/day of treated wastewater to land, as a management measure, until the proposed upgrade is completed. This consent will be surrendered once the upgraded system is working.

The applicant has proposed the following mitigation measures:

Solids Application to Land/Contingency Monofill

- Dewatering of material prior to application.
- Utilisation of an appropriate nitrogen application rate of 250 kg/N/ha/yr.
- Organic solids management (including the management of the proposed monofill) via a Biosolids Management Plan.

Treated Wastewater Application to Land

- Application depth not exceeding 50 mm in any 24 hour period.
- Wastewater application via a low pressure method (K-line), at a rate not exceeding 5mm/hr.
- A return period of at least 15 days.
- Annual nitrogen loading rate not exceeding 250kg N/ha/yr.
- No irrigation when the soils are at or above 80% water filled pores as recorded at the Wallacetown-Price Road soil moisture monitoring site.
- Avoiding Zone 2 soils.
- The current groundwater and soil monitoring system remaining in place.
- Imposition of a trigger limit, to address exceedance of nitrate-nitrogen concentrations compared with upstream levels. If such an exceedance is detected, investigation and reporting would be required.

Mr Rob Potts, Council's consultant from Lowe Environmental Impact Limited, was asked to provide comment on the application in respect of effects on soils, surface water and groundwater from the treated wastewater and BNR biosolids land application activities (including the proposed monofill). His comments are:

- wastewater irrigation is having minimal effects on Batemans Drain and surface water in general;
- the current wastewater irrigation management and recording practices, together with existing monitoring requirements are appropriate for the management of any actual or potential adverse effects;
- applying the soil areas available for BNR biosolids/SYS application, an area weighted average nitrogen leaching rate for the site is estimated to be 17 kg N/ha/yr, which is not too dissimilar to that under the existing irrigation regime;
- for the dewatered BNR biosolids, the hydraulic loading onto the land will be negligible. A stock withholding period of 14 days is proposed which will also ensure there is no potential for pugging damage. Potential for soil structure damage through vehicle compaction will be also be avoided by proposed mitigation measures, such as no application when soil conditions are too wet (20-25% of the time);
- the proposed BNR biosolids nitrogen loading of 250 kg N/ha/yr is likely to result in acceptable leaching, particularly when only about 50% of the N in the BNR biosolids will be mineralised and available for plant uptake and leaching;
- there will be setback distances (buffer zones) maintained between application areas and surface water to avoid any potential mobilisation of the applied BNR biosolids/SYS to drains leading to the Makarewa River. The readily available (leachable fraction) of nitrogen is at low levels and are unlikely to result in nitrogen being discharged to surface water via runoff and overland flow.

The leaching of nitrogen is a key concern with respect to the application of organic material to land, as this could give rise to adverse effects on groundwater and surface water resources. Application rates consistent with maintaining a sustainable nitrogen loading rate are required.

Wastewater irrigation is not having any detrimental effect on soil chemistry or physical aspects and is not resulting in excessive nitrogen leaching. In future, it is only to be carried out on Zone 1 soils, so issues associated with irrigation of the poorer draining Dacre soils no longer exist. In the long-term, irrigation of wastewater will cease once the WWTP is upgraded, hence any effects on soils will cease. Effects on soil from wastewater irrigation are therefore considered to be less than minor.

Heavy metals and pathogens will likely be attenuated in the soil matrix rather than being bypassed to groundwater, so the effects on groundwater from the BNR biosolids/SYS application will be less than minor.

It is considered that the effects of heavy metal loading onto land is no more than minor, as the biosolids concentrations are well below relevant soil guideline limits.

Mr Potts has recommended the following irrigation management criteria:

- the depth of the wastewater irrigation shall not exceed 50 mm in any 24-hour period;
- wastewater is to be applied at a rate not exceeding 5 mm/hr;
- the irrigation return period shall not be less than 15 days;
- the annual nitrogen loading rate, from all sources, shall not exceed 250 kg N/ha/yr;
- irrigation shall only occur when soil moisture content is lower than field capacity; and
- irrigation shall only occur on Zone 1 soils.

These management criteria are recommended to be included as consent conditions.

Provided the recommended consent conditions are imposed and the applicant undertakes the proposed mitigation measures, the effects of the application of treated wastewater to land, and the application of BNR biosolids to land and into the contingency monofill on soil and groundwater are considered to be minor.

Temporary Treated Wastewater Storage

In terms of potential effects arising from the temporary storage facility, it is noted that this would only be utilised as a short-term emergency contingency option when the ability to discharge treated wastewater to the Makarewa River is compromised due to drought and low river flows. When river conditions return to normal (or appropriate to receive the discharge) the stored wastewater will be discharged to the river.

There would be some seepage of the wastewater through to soil and groundwater but this is not expected to be significant and the wastewater quality would be the same as would otherwise be discharged directly to the river. In this locality, it has been determined that groundwater is directed to the Makarewa River via interception by Boiler Drain.

Given that the storage activity is temporary and is rarely utilised, the effects on soil and groundwater are expected to be minor.

Abstraction - Effects on Water Quantity and Bed of the Oreti River

The effects of the activity with regard to water quantity will be discussed in detail below. Further context is provided in the appended application, technical reports and reports from Council's experts. These have not been repeated in full here.

The applicant is seeking to continue to abstract water from the Oreti River up to 22,500 m³/s/day, at a maximum rate of 260 l/s. The current allocation in the lower Oreti catchment is close to 75% of the primary allocation. This allocation includes the applicant's existing water take, which is for the same amount as the proposed take.

The applicant is also seeking consent to undertake works within the intake embayment area. The embayment area is approximately 45 m long, and needs to be cleared annually to ensure that the intake structure is free from gravel and debris. Additional clearance may also be required after a flood event.

The applicant does not seek to increase the amount of water that is taken under its current permit and therefore the take will not contribute to the over-allocation of the surface water resource within the lower Oreti River. The current allocation in the Oreti River is 75%, which includes the applicant's current abstraction.

The applicant has assessed the ongoing abstraction effects on the hydrology of the Oreti River, water quality, and aquatic habitat and considers them to be minor. The proposed abstraction is a continuation of the existing take, and there is no proposed increase in the instantaneous rate of take or the annual volume. The applicant has proposed mitigation measures to ensure the effects of its take and any associated maintenance works are minor.

The applicant has proposed the following mitigation measures:

- upgrading of the existing fish screen to a smaller mesh size within five years of the consent being granted;
- continued implementation of a Low Flow Contingency Management Plan, and adherence to requirements of this plan during times of specified low flow conditions in the Oreti River. This will mitigate or minimise any adverse effects arising at a time when the river levels are low;
- during maintenance works, ensuring the channel is checked for eels prior to works commencing and, if found, transferring them to the main body of the river.;
- avoiding scheduled works during key fish migration times; and
- ensuring that the worked area is kept to an appropriate minimum.

Dr Greg Ryder provided comment on the application in respect of effects from the proposed water abstraction activity, as summarised below:

- the effect of this minor increase in low flows is unlikely to significantly adversely affect water quality or river ecology;
- the abstraction has at best a minor effect on flow variability, including the frequency of flood flows and low flow events;
- the existing intake structure does not represent best practice with respect to New Zealand fish screening guidelines;
- clarification should be sought regarding the instantaneous maximum rate of take and how this may influence the critical approach velocity through the intake screen;
- it is unclear why a five year period has been recommended before the fish screen upgrade will occur, as the current situation is unsatisfactory.

The only identified effect on the river due to this abstraction was a likely increase in the number of days that flows were below the natural seven-day MALF. The applicant's abstraction will increase the number of days that the Oreti River dips below the seven-day MALF (an overall increase of 9% in days less than seven-day MALF compared to naturalised flows due to the applicant's abstraction). This is considered to have a minor effect.

It is recommended that a consent condition be imposed that requires the applicant to upgrade the fish screen (in line with the guidelines recommended by Dr Ryder in his evidence) within a shorter timeframe (two years).

Provided the recommended additional consent conditions are imposed and the applicant undertakes the proposed mitigation measures, the effects of the proposed water abstraction and associated maintenance works are considered to be minor.

Effects on Air Quality

The effects of the activity in regards to air quality arising from the discharge of combustion products and odour will be discussed in detail below. Further context is provided in the appended application, technical reports and reports from the Council's experts. These have not been repeated in full here.

Combustion Emissions

The applicant operates two coal-fired boilers (CFB or boilers) on the site, which emit particulates (PM₁₀, PM_{2.5}), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), dioxins and heavy metals into the air. These contaminants can result in effects on human health and amenity effects from soiling of surfaces.

The applicant has undertaken dispersion modelling of the combined boiler discharges to assess ground level concentrations (GLCs), and undertaken ambient monitoring of the discharge emissions within the immediate receiving environment downwind of the plant. The results were assessed against relevant national and international standards and guidelines for air quality and human health.

Consideration of cumulative effects of the applicant's discharges in combination with background concentrations was undertaken. The applicant's assessment was that cumulative ambient contaminant concentrations achieve compliance with all relevant standards and guidelines for air quality beyond the property boundary and at locations where people are likely to be exposed.

The application concluded that for all contaminants, with the exception of particulates, achieving compliance with the standards and guidelines indicates that the effects on air quality and human health are minor or less than minor. The applicant concluded that the potential for adverse health effects due to cumulative PM₁₀ exposure adjacent to Alliance's site boundary and beyond would be minor.

The application considered the impacts of PM₁₀ discharges on nearby airsheds (Invercargill, Wallacetown). The applicant has concluded that that the influence of the CFBs on the Invercargill airshed's 24-hour PM₁₀ levels will be below detection for at least 95 % of days in a year (i.e. below 1 µg/m³). The application concluded that the discharge of PM₁₀ from the boilers have a negligible impact on Wallacetown and the Invercargill airsheds.

Additional information was supplied by the applicant indicated that the contribution from background sources to PM₁₀ concentrations in the Invercargill airshed was most likely to cause NES exceedance when daily average wind speeds are <2m/s. Given the monitoring location for the Invercargill airshed

(located 9 km from the applicant’s CFBs) in the middle of urban Invercargill, PM₁₀ background concentrations near the north-western edge of the airshed (closest to the applicant’s discharges) would be significantly lower. Based on this, and the seasonality of the PM₁₀ concentrations in Invercargill and those of the CFBs, the applicant does not expect the CFBs would make a significant contribution to PM₁₀ concentrations in the Invercargill airshed during cold winter days when background concentrations are higher.

The applicant has compiled the various management and mitigation measures implemented for the CFBs in an Air Discharge Management Plan (ADMP), a draft copy of which was included with the application.

The mitigation measures the applicant proposed in respect of the CFB discharges were:

- a reduction in particulate emissions from its coal fired boilers within five years;
- use of an air discharge management plan, which will set out methods to manage effects of discharges from activities discharging contaminants to air (including the coal-fired boilers);
- discharge of combustion products via tall stacks to assist in dispersion of contaminants;
- continued use of coal with sulphur levels similar to those previously used;
- monthly reporting of coal sulphur levels;
- installation of opacity meters within the boiler stacks and measurement of the discharge opacity (it is noted that the applicant did not propose an opacity limit for the discharge);
- continuous ambient monitoring of PM₁₀ and PM_{2.5} at a single specific location east of the plant in the surrounding receiving environment, that is one of the most impacted in terms of both frequency and magnitude as a result of the CFB emissions. Results would be compared to ambient limits derived from data obtained during previous ambient monitoring undertaken in the monitoring location during 2014/15;
- additional stack emission testing, if ambient monitoring indicates exceedance of specified ambient limits; and
- regular servicing of the boiler units.

Mr John Iseli, Council’s consultant from Specialist Environmental Services Limited, was asked to review the application in respect of effects on air quality from the CFB discharges. His comments with respect to air quality matters associated with the CFB discharges are:

- the dwellings most affected by the boiler discharge are located on smaller blocks of rural zoned land immediately to the east of the applicant’s plant. Ambient monitoring of PM₁₀ and SO₂ has occurred near to the location of the nearest dwelling to the east of the boiler discharge (237 Steel Road). Other affected dwellings are located nearby on rural blocks in the Steel Road area;
- the modelling methodology used was robust and appropriate.
- any adverse effects from other contaminants (nitrogen dioxide, carbon monoxide, volatile organic compounds, metals and dioxins/furans) are likely to be minor;
- the predicted maximum GLCs have been underestimated and should therefore be increased by approximately 20% in relation to PM₁₀ 24 hour averages and 44% in relation to SO₂ predictions. This approach would result in appropriately conservative predictions of worst-case impacts for the primary contaminants discharged.

Particulate Discharges

- The PM₁₀ concentration value of 250 mg/m³ is a “minimum” standard for boilers of this scale.

- The predicted contribution from the boiler discharge to cumulative PM₁₀ GLCs at the nearest affected dwelling is significant at up to 20 µg/m³ (24 hour average).
- Ambient monitoring results indicate that the existing boiler discharge, with relatively poor emission control, has potential to cause PM₁₀ GLCs higher than those predicted and approaching the NES of 50 µg/m³. This outcome could occur due to actual emission concentrations significantly exceeding the proposed 300 mg/Nm³ limit at times, as well as slightly higher than expected background concentrations. The proposed boiler automation with oxygen trim and CO control be implemented as soon as possible and no later than two years from the date of commencement of any consent.
- The magnitude of PM₁₀ concentrations predicted at dwellings to the east of the applicant's plant is such that it is concluded that the adverse effects are more than minor.
- The best practice emission control would be bag filtration or an electrostatic precipitator (ESP).
- The adverse effects of PM₁₀ from the boiler discharge at the Invercargill airshed are acceptable in the short-term, provided the automated control and oxygen trim system is installed within two years. The reduction in PM₁₀ emissions necessary to reduce long term localised adverse effects (such as installation of an ESP) would adequately address the contribution from the boiler discharge to high pollution events in Invercargill.

Sulphur Dioxide Discharges

- The modelling results indicate that predicted short-term (1 hour average) SO₂ GLCs at the nearest neighbouring dwelling are well within the NES of 350µg/m³ (1 hour average).
- The highest predicted off-site GLCs occur on two relatively narrow sections of rural land that extend westward from Steel Road and are surrounded by the applicant's land on three sides. The maximum predicted SO₂ GLC slightly exceeds the NES value but it based on conservative assumptions. Peak SO₂ GLCs at this rural land are likely to be well within the NES maximum value.
- In relation to 24 hour average SO₂ predictions, the modelling predicts off-site GLCs on the nearest section of rural land that significantly exceed the NZ Ambient Air Quality Guideline (24 hour average). Based on the maximum emission rate of 112 kg/hr sought, a maximum off-site GLC of 202 µg/m³ (24 hour average) is predicted.
- The predicted maximum 24 hour average SO₂ GLC at the nearest affected dwelling is less than the NZ AAQG (24 hour average).
- The predicted maximum 24 hour SO₂ concentrations at the nearest dwelling exceed the World Health Organisation (WHO) 2006 guideline of 20 µg/m³ (24-hour average) and also exceed the WHO interim guideline of 50 µg/m³ (24 hour average), although there is some debate about the applicability of these.

Based on the modelled predictions and the results of ambient SO₂ monitoring adjacent to this site, SO₂ discharged from the CFBs is unlikely to cause adverse effects at locations where people are likely to be present on a regular basis.

Given the current usage of the land where the highest predicted off-site SO₂ GLCs occur and the low probability of persons being present at the same time when peak GLCs occur, any short-term adverse effects of SO₂ are likely to be minor.

In terms of 24-hour exposure at the same location, bearing in mind the current rural use of the land, persons are likely to experience only brief exposure to SO₂ during a 24 hour period and thus significant adverse effects are unlikely. The discharge has potential to restrict the future development of this rural land and also the development of a strip of rural land to the south. Further information supplied by the applicant indicates that the underlying zoning of the land would preclude any sensitive development

(such as residential development) occurring on it. It should be noted that the applicant did not seek written approval from the owners of the affected sections of rural land.

Recommended Consent Conditions

Based on Mr Iseli's evidence, I recommend that the following consent conditions are adopted:

- a mass emission limit for the combined SO₂ emission rate to be limited to 78 kg/hr (as assessed) and monitored using in-stack continuous meters installed within two years of consent commencement;
- during the interim two year period, the coal sulphur content limit should be set at 0.45% by weight. This is the top end of the range of sulphur contents reported for the coal currently burned;
- improved coverage of the coal storage bunker to prevent rain ingress (as excessive/variable moisture content can affect combustion conditions), to be completed within two years of commencement;
- the timeframe for the proposed reduction in PM₁₀ discharge concentration to 250 mg/m³ should be reduced as soon as possible and no later than two years from commencement of the consent, so that the reduced discharge PM₁₀ concentration target is met within two years;
- PM₁₀ stack emission testing is recommended to be undertaken annually during the first five years of any consent. This monitoring would serve to confirm that the necessary improvements have been made to consistently achieve the 250 mg/Nm³ PM₁₀ limit;
- given that the NES is based on a daily average concentration, a 24-hour average trigger of 40 µg/m³ is recommended to be set on ambient monitoring limits, with a rider to allow for any unusually high background concentrations beyond the consent holder's control. Exceedance of the trigger would require stack monitoring and investigations, as for exceedances of the 1 hour average triggers;
- due to the magnitude of predicted PM₁₀ GLCs in this case and the lack of comprehensive in-stack monitoring (including condensable PM testing), it is critical that the ambient monitoring continues for the duration of consent or until best practice PM emission controls (such as an ESP) are installed and proven to be effective. A revision to the proposed consent wording to the proposed consent condition is recommended to ensure that the ambient monitoring is continuous;
- proposed condition 17 requires a review of the consent after 10 years to identify if there is a need for additional mitigation measures. The factors considered would include monitoring results, available emissions controls, relevant guidelines and the best practicable option. Such conditions offer little value and are simply too uncertain and subjective, particular in relation to the determination of the "best practicable option". The applicant has attempted to improve certainty by adding a Council certification requirement, but this is not sufficient. The outcome is likely to be a significant debate between the Council and the consent holder regarding what technology is the best practicable option, particularly given the likely substantial costs involved. Essentially, this process becomes one of "consent within a consent";
- an additional clause to be included in the review condition requiring ambient SO₂ monitoring to be implemented in the event of a 24-hour average guideline of 50 µg/m³ for SO₂ being adopted in New Zealand.

It is concluded that, with the use of the proposed mitigation measures and imposition of recommended consent conditions, the effects from the contaminant discharges from the applicant's coal-fired boilers should be no more than minor.

Odour

Process Odours

Several on-site processes, as well as the wastewater treatment system itself can cause, or have the potential to generate odour discharges that can adversely impact receptors in the receiving environment around the plant. The application included an assessment of process odour mitigation measures and a report on community odour surveys undertaken during 2013 and 2014 that examined impacts from process and wastewater-related odours sources on receptors in the receiving environment around the site.

The applicant has compiled the various management and mitigation measures implemented for the various odour sources in an Air Discharge Management Plan (ADMP), a draft copy of which was included with the application. The ADMP outlines the odour complaint response system used to respond to any complaints regarding odours from the plant.

The application concluded that with the continuation of appropriate management practices and technology employed by the applicant with respect to the management of potential on-site odours, coupled with the buffer distance of the plant from any sensitive receptor, the adverse effects arising from odour emissions will be minor.

The application notes that the upgraded wastewater system is anticipated to also reduce odour emissions from that source, and the application of biosolids to land will be managed to also take into account potential odour effects.

The application does note that odours are mitigated by the distance between the plant operations and neighbouring sensitive receptors, via the large area of land that surrounds the plant, which acts as a buffer. This is particularly relevant for some odour generating processes on the site, which have a lesser degree of odour control (such as the fellmongery) that rely on the large buffer distance to receptors to mitigate their odour effects. It is also noted that the applicant does not own the entire area that is used for buffering purposes. The applicant did not seek written approval from the other owner of land within the buffer area.

Further information supplied by the applicant indicates that the underlying zoning of the land would preclude any sensitive development (such as residential development) occurring on it.

The various on-site sources can, at times, generate odours that could be considered offensive or objectionable. The applicant proposes to control the odours via various methods (using the Best Practicable Option approach) to ensure that odours beyond the site boundary are not offensive or objectionable. I consider that the odour control measures outlined in the ADMP are consistent with accepted measures for odour management of the various identified sources.

Odours from Treated Wastewater/Solid Management Activities

Mr Potts was asked to provide specific commentary on the application in respect of odour effects from the treated wastewater and BNR biosolids land application activities (including the proposed monofill), summarised as follows:

- the odour survey concluded that for some residents (in particular those living closest to the southern property boundary of the Alliance site), there are some isolated occasions when the

odour discharges from the anaerobic pond could be causing objectionable and/or offensive odour;

- the survey also indicated that local residents in Wallacetown and dwellings to the north-east and south to south-east of the WWTP are likely to experience occasional odours that are mainly generated from the anaerobic pond. The applicant determined that these residents and properties are generally not exposed to objectionable or offensive odours from the WWTP. The applicant concluded that because odours are detected on a sufficiently low frequency, their duration and intensity cannot be considered to be objectionable or offensive;
- odours are a very subjective issue. Mr Potts does not agree that if the odour frequency is low, then their duration and intensity cannot be considered objectionable or offensive. The odour may not be considered a “nuisance” due to several FIDOL factors (frequency, intensity, duration, offensiveness, location) being low but frequency has little to do with an odour being considered offensive or objectionable – this is to do with the type of odour and its intensity;
- odour potential from a new BNR plant is likely to be less than from the existing WWTP, particularly if chemical changes are made within the fellmongery;
- there are relatively simple techniques to mitigate odour from a covered anaerobic pond should they be an issue;
- it is important that only BNR biosolids that have not become anaerobic and odorous can be spread onto land;
- BNR biosolids that have been stored for a long period (>1 year) may have degraded sufficiently anaerobically to be relatively stable and therefore any triggers on storage times need to be specific.

The applicant concludes that odours from the BNR biosolids application can be effectively controlled via appropriate management, with respect to storage and retention times, in conjunction with an adaptive management approach.

The applicant concludes that given the separation distances between areas that could receive BNR biosolids and adjacent sensitive receptors and local meteorology, should the use of these measures not be sufficient to avoid adverse odour effects beyond the boundary of the site, then contingency measures would need to be considered. This could include alternative management/disposal options.

These contingencies and their triggers for implementation are yet to be outlined by the applicant but need to be addressed in an Operation and Management Plan, showing how these will be addressed should the requirement for mitigation be triggered. Such a plan was not supplied with the application, but it is recommended that a consent condition be imposed to require it is prepared and submitted to Council prior to biosolids application occurring.

The recommended consent conditions require that there be no discharge of odour beyond the boundary of the site as a result of the exercise of the consent that is offensive or objectionable, to the extent that it causes an adverse effect.

Given that odours from the rendering department are driven by process factors (such as raw material freshness), various conditions are recommended to ensure that only fresh material (which will have limited potential for odour generation) is processed and that the odour control system for the rendering department is installed and functioning at all times. The biofilter is a key component of the rendering odour treatment system, so various conditions are recommended to ensure it functions correctly.

In order to deal with contingency events in the rendering department, a consent condition is recommended which requires that the applicant prepare, maintain and implement a contingency plan for situations where the rendering plant is inoperative due to equipment failure. A consent condition is

recommended to be imposed to require that the plan is prepared and submitted to Council prior to the exercise of the consent. The recommended condition also requires that, should any alterations or changes be made to the contingency plan the applicant is to supply a copy of the most recent version to the Council within a specified timeframe (one month).

The applicant already has an Air Discharge Management Plan (ADMP) in place to manage odour discharges from the site. A consent condition is recommended that requires the applicant to prepare and submit the plan to Council prior to the exercise of the consent. The ADMP should include a timeline for implementing mitigation measures should nuisance odours from the upgraded treatment system occur.

The recommended condition also requires that, should any alterations or changes be made to the ADMP that the applicant is to supply a copy of the most recent version to the Council within a specified timeframe (one month).

As recommended by Mr Potts, operational and mitigation procedures for BNR biosolids application to land and the contingency monofill need to be outlined in an Operation and Management Plan. The recommended condition would require that the plan is submitted prior to the exercise of the consents. It also requires that, should any alterations or changes be made to the plan that the applicant is to supply a copy of the most recent version to the Council within a specified timeframe (one month).

In order that any odour non-compliances that occur are handled appropriately, a consent condition is recommended that requires the applicant to advise the Council immediately, and follow this up with a report detailing the causes and any corrective actions that need to be applied. It is important that the reporting occur in a timely manner, so a recommended timeframe for this is set out in the recommended condition wording (one month).

It is concluded that, with the use of appropriate management measures and imposition of recommended consent conditions, the effects from odour discharges should be no more than minor.

Effects on Cultural Values

Both the Oreti River and the New River Estuary are statutory acknowledgement areas under the Ngāi Tahu Claims Settlement Act. The Crown has acknowledged Ngāi Tahu's association with these areas. The statutory acknowledgement notes that:

- the Oreti River traverses a significant area of Murihiku, stretching from its mouth at Invercargill almost to the edge of Whakatipu-wai-maori (Lake Wakatipu). As such, it formed one of the main trails inland from the coast;
- the tupuna 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 Oreti, 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 Ngai Tahu today;
- the kai resources of the Oreti would have supported numerous parties venturing into the interior, and returning by mokihi (vessels made of raupo), laden with pounamu and mahinga kai. Nohoanga (temporary campsites) supported such travel by providing bases from which the travellers could go water fowling, eeling and catching inaka (whitebait), and were located along the course of Oreti River;
- there were a number of important settlement sites at the mouth of the Oreti, in the New River Estuary, including Omaui, which was located at the mouth of the Oreti, where it passes the

New River Heads. Oue, at the mouth of the Oreti River (New River estuary), opposite Omaui, was one of the principal settlements in Murihiku;

- as a result of this pattern of occupation, there are a number of urupa located at the lower end of the Oreti, in the estuarine area. Urupa are the resting places of Ngai Tahu tupuna and, as such, are the focus for whanau traditions. These are places holding the memories, traditions, victories and defeats of Ngai Tahu tupuna and are frequently protected by secret locations.

Therefore the proposed discharges will affect an area of significance to Ngāi Tahu.

In future, after the WWTP is upgraded, the applicant is proposing to discontinue wastewater irrigation to land and discharge all treated wastewater to surface water. The direct discharge will contain human-derived wastewater from Wallacetown. It is more culturally appropriate to provide human-derived wastewater passage through Papatūānuku (Mother Earth), rather than directly discharging it to water. The applicant is not proposing to provide any future land-based treatment component to address this.

The applicant has consulted with Te Ao Marama Inc (TAMI) to seek Iwi perspective on the consents that are being sought. TAMI was asked to prepare a Cultural Values Report. This report has been used to help quantify the Ngai Tahu ki Murihiku values within the Makarewa River and Oreti River in particular.

The Cultural Values Report and consultation has identified that there are core cultural values that need to be recognised and appropriately managed as part of the consenting and mitigation developed for the Plant. These core values include kaitiakitanga, mahinga kai, ki uta ki tai (linkages to the wider catchment and processes) and whanaungatanga (health and wellbeing of Maori people). These matters have been taken into consideration as part of the wider environmental investigations and assessment undertaken (i.e. water quality, ecosystem health, economic). The applicant recognised that a holistic approach to the management of environmental effects is necessary and advocated by Maori.

Despite the consultation that was undertaken, the applicant has requested a consent term of 35 years for all consents applied for. TAMI submitted in opposition to the application, indicating that it would not support a consent term of more than 25 years for any of the consents applied for. In its submission, TAMI stated that the management board provided its support, in principle, for the proposed primary wastewater treatment upgrade. The TAMI submission indicated that Iwi have a strong preference for land disposal of all wastewater and avoiding human waste discharges to water, but Iwi accept that these preferences are not practicable in this case.

The applicant has undertaken a large amount of consultation with the Iwi and proposed the preparation of a Habitat Enhancement Management Plan to address its concerns.

It is recommended that any term of consent be limited to no more than 25 years, to address Iwi concerns. Provided this recommendation was accepted, and given the mitigation offered by the applicant, it is considered that the effects on cultural values should be minor.

Effects on Recreational Users

The applicant notes that the proposed discharges to water and land, and the abstraction of water has the potential to adversely affect recreational values associated with the Makarewa and Oreti Rivers and the New River Estuary.

Both the application and submissions noted that the lower Makarewa River is used for various recreational pursuits, including whitebaiting, fishing and game bird hunting. The New River Estuary is

an important area for non-contact and contact recreational pursuits. Recreational activities such as whitebaiting, fishing and picnicking are also undertaken on the Oreti River.

The discharge of treated wastewater to the Makarewa River has the potential to affect anglers, hunters and whitebaiters by:

- reducing the size or number of fish through low dissolved oxygen and elevated ammoniacal nitrogen concentrations;
- reducing the size and number of fish through reduced benthic invertebrate abundance and reducing small fish abundance and size;
- reducing the number of ducks by reducing food availability; and
- aesthetic effects negatively affecting hunter and angler perceptions/enjoyment.

The application indicates the current dissolved oxygen and ammoniacal nitrogen concentrations are not likely to be adversely affecting trout populations and abundance in the lower Makarewa and Oreti Rivers, and therefore any adverse effects on angler enjoyment and satisfaction are expected to be minor. It is also unlikely that the discharge is having an adverse effect on duck populations, as they are more likely to be affected by other factors.

On occasion, the discharge results in some visible foams and scums within and immediately beyond the mixing zone. This is relatively infrequent, but it may adversely affect the aesthetic enjoyment of the river. However, because it only affects a relatively limited section of the river, is infrequent, and only a small number of people are exposed to it, this effect on recreational values was assessed by the applicant as being minor.

The applicant has concluded that, given the relatively small contribution that the discharge makes to the overall TN load in the New River Estuary, and the small resultant effects on macroalgal growths, the effect of the discharge on recreational users of the estuary is likely to be minor.

The applicant is not proposing any treatment improvement to reduce the level of microbial contaminants in the discharge to the Makarewa River. It is proposing a review 10 years from the commencement of the discharge consent of river *E.coli* levels and the practicability of additional treatment (disinfection).

Submitters have indicated that the Makarewa and Oreti Rivers are recognised sports fisheries, and it is common for anglers to wade in them whilst fishing. The application contained evidence that there are various downstream recreational users.

Therefore, it is considered that there could be more than minor effects on recreational users from the applicant's discharge to surface water.

Effects – Overall Conclusion

I consider that:

- the effects of the proposed water abstraction (and associated intake maintenance activities) will be minor;
- the effects of the proposed treated wastewater discharge to land, temporary storage of wastewater and discharge of WAS to land and to the contingency monofil will be minor; and
- the effects of the proposed discharges of combustion products and odour to air will be minor;

provided recommended conditions are adopted and mitigation measures proposed by the applicant are undertaken.

I am unable to conclude whether the effects of the treated wastewater discharge to the Makarewa River will be minor, based on a large degree of uncertainty, the current level of effects of the discharge (which will occur for a further 15 years) and potential effects on downstream recreational users that could be more than minor.

3.3 Relevant provisions of National Environmental Standards and other regulations (Section 104(1)(b)(i) and (ii))

National Environmental Standards for Air Quality

The *Resource Management (National Environmental Standards for Air Quality) Regulations 2004* (NES) and subsequent amendments came into force in 2004, 2009, with the latest amendments being made in June 2011.

The NES sets out to restrict and control activities that release toxic air pollutants (also called hazardous air pollutants) and in general, the regulations override rules in a regional plan or a resource consent unless the plan or resource consent has stricter controls (section 43B(1) of the RMA). The NES applies in respect of ambient air quality concentration limits and the NES levels are lower than the Air Quality Plan in most instances.

The following provisions of the NES are relevant:

- **Regulation 13 – Ambient air quality standards** - the regulations set out the ambient air quality standard for a contaminant (Schedule 1 to the regulations). Regulation 13 defines when a breach of the standard has occurred;
- **Regulation 14 – Application of standard** - directs where the ambient air quality standard for a contaminant applies;
- **Regulation 17 – application to discharge** - PM₁₀ must be declined if the discharge would increase the concentration of PM₁₀ (calculated as a 24-hour mean) by more than 2.5 µg/m³ in any part of a polluted airshed other than the one which the consent would be exercised. However, this does not apply if the proposed consent is on the same site as the existing consent and if the amount and rate of the PM₁₀ discharge proposed is the same or less than that allowed by the existing consent.
- **Regulation 21 - Resource consents for discharge of sulphur dioxide** – sets out that a resource consent should be declined if the discharge would result in an airshed breaching the SO₂ standard.

The Council is currently reviewing the Air Quality Plan for Southland 1999 in respect of domestic heating, outdoor burning, agrichemical and fertiliser use, and fire training as a result of the NES. At this time, the NES does not restrict individual emission activities for activities such as the Alliance Lorneville site.

The proposed discharge to air includes the discharge of PM_{2.5}, PM₁₀ and SO₂ from the boilers. The site is located near the Invercargill airshed and the level of boiler usage will remain unchanged, resulting in the current level of PM₁₀ being discharged until such time as planned upgrades occur (which should result in less PM₁₀ being emitted). So Regulation 17 (shown above) does not restrict the granting of this application.

With regard to PM₁₀ impacts, the maximum cumulative 24-hour PM₁₀ concentration of 55 µg/m³ is predicted to occur at the nearest point of the site boundary (370 metres east of the boiler stacks). Only one exceedance above 50 µg/m³ is predicted to occur at this location over a two year period (i.e. only one modelled GLC above 35 µg/m³, before adding background).

The application has demonstrated that the discharges from the boilers will not result in exceedances of the relevant standards for contaminants other than PM₁₀ that are established by the NES.

National Environmental Standard for Sources of Human Drinking Water Regulations 2007

This NES is relevant to any application for a discharge permit. These regulations aim to reduce the risk of drinking water sources being contaminated. Regulations 7 and 8 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.

As this activity is not upstream of a registered drinking-water supply, the regulations have not been considered further for this application.

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 regulations apply to holders of water permits (resource consents) which allow fresh water to be taken at a rate of 5 l/s or more.

Given the size of the proposed abstraction, water metering will be a requirement for the proposed abstraction.

3.4 Relevant provisions of national policy statements (Section 104(1)(b)(iii))

National Coastal Policy Statement

The National Coastal Policy Statement (NZCPS) is relevant to this application. The objectives and policies of the NZCPS that are relevant to this application are:

Objectives

- Objective 1 *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:..*
 - *maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.*

- Objective 3 *To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment.*

- Policy 2 *The Treaty of Waitangi, tangata whenua and Maori heritage*

- Policy 3 *Precautionary approach*

Policy 21 *Enhancement of water quality*

Policy 23 *Discharge of contaminants*

The application indicates that the contribution of nutrients from the discharge to the total nitrogen and phosphorus loadings to the New River Estuary will be reduced from the current level (which is consistent with Objective 1 and Policy 21). However, I consider that there is uncertainty regarding the actual reduction in loadings as the treatment option proposed has not been settled on, so a precautionary approach to determining the consent is recommended (which is consistent with Policy 3).

In terms of the discharge of contaminants (Policy 23), the evidence presented in the application indicates that the current discharge may be having effects on the estuary due to nutrient inputs increasing nuisance macroalgae growth. The applicant is proposing to reduce nutrient loading to the estuary, but the period of time in which this will occur is considerable (15 years). It is therefore considered that the activity is generally consistent with Policy 23.

The New River Estuary is within the Rakiura/Foveaux Strait Coastal Marine Area, which is a statutory acknowledgement area under Schedule 104 of the Ngāi Tahu Claims Settlement Act 1998. The applicant has engaged in consultation with Iwi. Te Ao Marama Inc, on behalf of Ngāi Tahu, has submitted on the application. It is considered that this gives effect to Objective 3 and Policy 2.

National Policy Statement for Freshwater Management 2014

The NPSFM supports improved freshwater management in New Zealand. It does this by directing regional councils to establish objectives and set limits for fresh water in their regional plans.

The following objectives and policies in the NPSFM are of particular relevance to this application:

Water Quality

Objective A1 *To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and the health of people and communities, in sustainably managing the use and development of land, and of discharges of contaminants.*

Objective A2 *The overall quality of fresh water within a region is maintained or improved while protecting the significant values of outstanding freshwater bodies; protecting the significant values of wetlands; and improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.*

Policy A3 *By regional councils imposing conditions on discharge permits to ensure the limits and targets specified pursuant to Policy A1 and Policy A2 can be met; and where permissible, making rules requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant entering fresh water.*

Policy A4 *When considering any application for a discharge the consent authority must have regard to 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 on the health of people and communities as affected by their secondary contact with fresh water. 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, and the health*

of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided. This policy applies to the following discharges (including a diffuse discharge by any person or animal) a new discharge or a change or increase in any discharge.

Comment

If all of the mitigation measures offered by the applicant are adopted and the proposed wastewater treatment upgrade is implemented, that the activities may result in safeguarding of the life-supporting capacity of the in-river ecosystem whilst sustainably managing the discharge of contaminants from the applicant’s activities. There is, however, considerable uncertainty that the upgraded discharge to the Makarewa River will result in improvement to future water quality, so it is difficult to establish if this would be the case. Therefore, in my opinion the application is inconsistent with Objective A1.

I also consider that the proposal is inconsistent with Objective A2. This objective requires the overall water quality of a region is to be maintained or improved, whilst improving water quality in water bodies that have been degraded by human activities to the point of being over allocated and to protect the significant values of wetlands. This clause is important as the water quality within the Makarewa and Oreti Rivers has been degraded through contaminant contributions from point and non-point source discharges.

Based on the information contained in the application, it is likely that if all of the mitigation measures offered by the applicant are adopted, if best practice is followed and the proposed wastewater treatment upgrade is implemented, that the activities may result in the maintenance of water quality. There is, however, considerable uncertainty surrounding the treatment option proposed, the proposed timing of the upgrade and the likely future effects. Therefore, the application is inconsistent with Objective A2.

Policies A2 and A3 require the Council to set objectives and limits to assist in the improvement of water quality in waterbodies. At present, no catchment nutrient loading limits or limits for specific water bodies have been set by Council. The objectives associated with these policies seek to specifically protect the life-supporting capacities and ecosystems of fresh water bodies. Policy A4 has been inserted in the Regional Water Plan.

Water Quantity

- Objective B1 *To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water.*
- Objective B2 *To avoid any further over-allocation of fresh water and phase out existing over-allocation.*
- Objective B3 *To improve and maximise the efficient allocation and efficient use of water.*
- Policy B5 *By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a freshwater management unit that are authorised to be taken, used, dammed or diverted does not over-allocate the water in the freshwater management unit.*

Policy B6 *By every regional council setting a defined timeframe and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in the freshwater management unit is reduced to the level set to give effect to Policy B1.*

Policy B7 *When considering any application the consent authority must have regard to the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem and 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. This policy applies to any new activity and 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 or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity.*

Comment

Policies B5 and B7 concern water quantity and seek to protect the life-supporting capacity of the freshwater resources. This application seeks to abstract surface water and Objective B3 requires the efficient use of this freshwater resource. The proposed take is regarded as an efficient and reasonable use of water. The applicant is proposing no increase in the volume of the abstraction so there will be no change in the current level of effects.

The application is consistent with Objectives B1 and B2 and Policies B1, B4 and B5. This is because the taking of the water will not result in the over-allocation of the Oreti River surface water resource, and will still enable the resource to be sustainably managed.

Tāngata whenua roles and interests

Objective D1 *To provide for the involvement of iwi and hapū, and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.*

Policy D1 *Local authorities shall take reasonable steps to involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region; work with iwi and hapū to identify tāngata whenua values and interests in fresh water and freshwater ecosystems in the region; and reflect tāngata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.*

Comment

Te Ao Marama Inc, on behalf of Ngāi Tahu, has submitted on the application. Consideration of Te Tangi a Tauira and the involvement of Ngāi Tahu are consistent with Objective D1 and Policy D1.

3.5 Relevant provisions of the Southland Regional Policy Statement (Section 104(1)(b)(v))

The following objectives and policies in the Regional Policy Statement are of particular relevance to this application:

Takata Whenua

- Objective 1.1 *To protect wahi tapu from the adverse effects of resource use activities.*
- Objective 1.2 *To recognise the importance of wahi tapu, wahi taoka, mahika kai and the customary use of water to Kai Tabu.*
- Objective 1.3 *To incorporate Maori cultural and traditional spiritual values where appropriate into resource management decision making processes.*
- Objective 1.4 *To have particular regard to the concept of kaitiakitanga in relation to managing the use, development and protection of natural and physical resources.*
- Policy 1.2 *Recognise "Te Whakatau Kaupapa O Murihiku" as a Kai Tabu resource management reference planning document for the region.*

Comment

The provisions of Te Tangi a Tauira (Iwi Management Plan) have been considered in this report. In this instance, Te Ao Marama Inc and Ngai Tahu have been involved via pre-consultation with the applicant, including preparation of a Cultural Impact Report.

Water Quantity

- Objective 4.1 *To sustain the quantity of the region's water resources so as to meet the needs of a range of uses, including the reasonably foreseeable needs of future generations and safeguard the life-supporting capacity of water and related ecosystems.*
- Objective 4.2 *To manage the use and development of water and land resources so as, wherever practicable, to maintain and enhance flow regimes.*
- Objective 4.3 *To ensure the taking, use, damming and diversion of water does not compromise environmental standards established for the region.*
- Objective 4.4 *To achieve the efficient use of water extracted from water bodies.*
- Objective 4.5 *To recognise the relationship of Maori with water.*
- Policy 4.3 *Manage abstraction of water and the transferability of permits on the basis of the effects of that abstraction, or transfer, taking into account the standards set for the water body and the use to which the water is to be put.*
- Policy 4.4 *Encourage the conservation of water and its efficient allocation and use.*

Policy 4.5 *In considering resource consents, local authorities shall assess the effects of land use and development on the quantity and sustainability of water in water bodies and provide for any adverse effects to be avoided wherever practicable, or remedied or mitigated.*

Policy 4.6 *Manage the region's water resources in ways that recognise and provide for the values that Maori place on water.*

Comment

The application is consistent with the above provisions. This is because the proposed abstraction will be required to be metered and the information reviewed shows that the taking of the water should not result in the over allocation of the Oreti surface water resource.

Water Quality

Objective 5.1 *To sustain the quality of the region's water resources so as to meet the needs of a range of uses, including the reasonably foreseeable needs of future generations and safeguard the life-supporting capacity of water and related ecosystems.*

Objective 5.2 *To ensure that in the use and development of water and land resources, and the discharge of contaminants, water quality is maintained and wherever practicable enhanced.*

Objective 5.3 *To ensure the taking, use, damming, diversion of water and the discharge of contaminants into water does not compromise water quality standards established for the region.*

Objective 5.4 *To recognise the relationship of Maori with water.*

Policy 5.2 *Require all point source discharges, after reasonable mixing, to comply with water quality standards.*

Policy 5.5 *In considering resource consents, local authorities shall assess the effects of land use and development on groundwater and surface water quality, including both point and non-point source discharges, and provide for any adverse effects to be avoided, remedied or mitigated.*

Policy 5.8 *Manage the region's water resources in ways that recognise and provide for the values that Maori place on water.*

Comment

Objective 5.1 discusses the safeguarding of water quality. As proposed, the upgrade presented in the application appears to be the only option that would achieve this objective. Therefore, on face value, the application is generally consistent with this objective. This is only the case if all of the mitigation measures offered by the applicant are adopted, best practice is followed and the upgrade process occurs as per the application. Given there is uncertainty around the exact upgrade option that would occur, the proposed timing of the upgrade and the likely future effects, it is considered that the application is inconsistent with this provision.

Objective 5.2 refers to discharge of contaminants and avoiding or mitigating effects on water quality, so is particularly relevant to the discharge to water and land consents applied for. The objective refers to maintenance and, where practicable, enhancement of water quality. The proposed upgrade will likely result in maintenance of water quality, but there is uncertainty regarding enhancement of water quality above “bottom line” requirements. Therefore, the application is inconsistent with this provision.

Objective 5.3 and Policy 5.2 refers to the discharge of contaminants and water quality standards. The proposed in-river limits presented in the application are generally consistent with the RWP standards, excepting ammonia. It is unclear if the proposed in-river clarity limit will be achieved. Therefore, the application is inconsistent with Objective 5.3 and Policy 5.2.

Policy 5.5 specifically refers to point source discharges which may affect water quality, which is an important consideration when assessing the effects of the applicant’s proposed discharges to water and land. The application attempts to quantify the effects of the future discharges to water and land. Measures to avoid, remedy and mitigate effects of the discharges are also offered. However, the ability to manage the ongoing effects of the activity is dependent on having certainty as to the likely future effects. This is not certain as the final upgrade option has not been chosen so the exact level of effects is uncertain. Therefore, the application is inconsistent with this provision.

The requirements of Objective 5.4 and Policy 5.8 are satisfied as the provisions of Te Tangi a Taurira (Iwi Management Plan) have been considered in this report. Te Ao Marama Inc and Ngai Tahu have been involved via pre-consultation with the applicant and a Cultural Impact Report was prepared by TAMI.

Lakes, Rivers and Wetlands

Objective 6.2 *To recognise and provide for the relationship of Maori and their culture and traditions with lakes, rivers and wetlands.*

Objective 6.4 *To avoid wherever practicable, remedy or mitigate, the adverse effects of activities in, on, under, adjacent to, or over the beds of lakes, rivers and wetlands.*

Policy 6.4 *Consult with the takata whenua and provide for Maori cultural and traditional spiritual values in relation to the use and management of lakes, rivers and wetlands.*

Policy 6.11 *Manage the effects of activities that could adversely impact on the quality and quantity of water in rivers and lakes used for public and rural water supplies, and the structures used to draw such waters.*

Comment

The applicant abstracts water from the Makarewa River, including undertaking maintenance works associated with its intake structure. The applicant has proposed mitigation measures to ensure that effects on the bed of the Makarewa River are minimised, so it is consistent with Objective 6.4.

The application attempts to quantify the effects of the future discharges to water. Measures to avoid, remedy and mitigate effects of the discharges are also offered. However, the ability to manage the ongoing effects of the activity is dependent on having certainty as to the likely future effects. This is not certain as the final upgrade option has not been chosen so the exact level of effects is uncertain. Therefore, the application is inconsistent with Policy 6.11.

The provisions of Te Tangi a Taurira (Iwi Management Plan) have been considered in this report. Te Ao Marama Inc and Ngai Tahu have been involved via pre-consultation with the applicant. The application is therefore consistent with Objective 6.2 and Policy 6.4.

Soils

- Objective 8.1 *To promote the sustainable management of all soils.*
- Objective 8.5 *To avoid, remedy or mitigate any adverse effects of the use or development of land on wahi tapu, wahi taoka and archaeological sites.*
- Policy 8.1 *Maintain and enhance Southland's soil resource by avoiding, remedying or mitigating the adverse effects of activities.*
- Policy 8.2 *Provide for the sustainable management of the most versatile soils of the region.*
- Policy 8.4 *Recognise and provide for Maori cultural and traditional spiritual values and consult the takata whenua, when making statutory decisions on soil issues and preparing a Regional Sustainable Land Management Plan.*

Comment

In regard to the suitability of the soils on the site the application and activity is consistent with the above provisions. The method of discharge follows current practice for land application. The provisions of Te Tangi a Tauira (Iwi Management Plan) have been considered in this report. Te Ao Marama Inc and Ngai Tahu have been involved via pre-consultation with the applicant.

Air Quality

- Objective 12.1 *To protect the Region's air quality, and to enhance air quality in areas where it has been degraded.*
- Objective 12.4 *To recognise and provide for Maori culture and traditions in relation to air.*
- Policy 12.3 *Consider health concerns in all matters relating to air quality management.*
- Policy 12.4 *Recognise Maori cultural sensitivity to air quality issues.*

Comment

The applicant's proposed air discharges should not result in degradation of the area's air quality, as it is not proposing to increase the level of discharges. The applicant's dispersion modelling assessment included assessment of predicted ground level concentrations with guideline values that are based on protecting human health. It is proposed that a reduction in PM₁₀ emissions from the CFBs will occur within a set time period. The application is therefore considered to be consistent with Objective 12.1 and Policy 12.3.

The provisions of Te Tangi a Tauira (Iwi Management Plan) have been considered in this report. Te Ao Marama Inc and Ngai Tahu have been involved via pre-consultation with the applicant. This is considered to be consistent with Objective 12.4 and Policy 12.4.

Coastal

- Objective 13.2 *To avoid, wherever practicable, remedy or mitigate any adverse effects from the use and development of the natural and physical resources within the coastal environment.*
- Objective 13.4 *To recognise and provide for cultural, ancestral and traditional values of Maori in the management of the coastal marine area.*
- Policy 13.1 *Recognise sites and resources of cultural, natural and spiritual significance to Maori and consult the takata whenua when making statutory decisions on issues impacting upon such matters.*

Comment

The application indicates that the nutrient loading to the New Rive Estuary is likely to decrease once the proposed upgrade of the wastewater treatment system is fully operational (proposed to be 15 years by the applicant). This reduction will reduce any adverse effects currently occurring in the estuary as a result of the applicant's discharge. The application is therefore considered to be consistent with Objective 13.2.

The provisions of Te Tangi a Tauira (Iwi Management Plan) have been considered in this report. Te Ao Marama Inc and Ngai Tahu have been involved via pre-consultation with the applicant and prepared a Cultural Impact Report. This is consistent with Objective 13.4 and Policy 13.1.

3.6 Relevant provisions of the Proposed Southland Regional Policy Statement 2012 (Section 104(1)(b)(v))

The following objectives and policies in the Proposed Regional Policy Statement are of particular relevance to this application:

Tangata Whenua

- Objective TW.1 *The principles of the Treaty of Waitangi/Te Tiriti o Waitangi are taken into account in a systematic way through effective partnerships between tangata whenua and local authorities, which provide the capacity for tangata whenua to be fully involved in council decision-making processes.*
- Objective TW.2 *All local authority resource management processes and decisions take into account iwi management plans.*
- Objective TW.3 *Mauri and wairua are sustained or improved where degraded, and mahinga kai and customary resources are healthy, abundant and accessible to tangata whenua.*
- Objective TW.4 *Wahi tapu, wahi taonga and sites of significance are appropriately managed and protected.*
- Objective TW.5 *Māori are able to develop and use their land and resources and provide for their social, economic and cultural wellbeing, in a manner that is sustainable.*
- Policy TW.1 *Consult with, and enhance tangata whenua involvement in local authority resource management decision-making processes, in a manner that is consistent with the principles of the Treaty of Waitangi/Te Tiriti o Waitangi.*

- Policy TW.2 *Actively foster partnerships and relationship agreements between local authorities and tangata whenua.*
- Policy TW.3 *Take iwi management plans into account within local authority resource management decision making processes.*
- Policy TW.4 *When making resource management decisions, ensure that local authority functions and powers are exercised in a manner that recognises and provides for: traditional Māori uses and practices relating to natural resources; the ahi kā relationship of tangata whenua with and their role as kaitiaki of natural resources; mahinga kai and access to areas of natural resources used for customary purposes; mauri and wairua of natural resources; places, sites and areas with significant spiritual or cultural historic heritage value to tangata whenua; Māori environmental health and cultural wellbeing. 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.*
- Policy TW.5 *Assist and enable the use and development of Māori land and resources, in a manner that is sustainable.*

Comment

Te Tangi a Taurira, and the views of Te Runanga o Ngai Tahu and Te Ao Marama Inc have been taken into account in assessing the application. Te Ao Marama Inc on behalf of Ngai Tahu, submitted on the application. TAMI has also undertaken a cultural impacts assessment in relation to the application. The application is therefore consistent with the above provisions.

Water Quality

- Objective WQUAL.1 *Water quality in the region: safeguards the life-supporting capacity of water and related ecosystems; safeguards the health of people and communities; is maintained, or improved in accordance with freshwater objectives formulated under the NPS for FM 2014; is managed to meet the reasonably foreseeable social, economic and cultural needs of future generations.*
- Objective WQUAL.2 *Halt the decline and enhance 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 NPS 2014.*
- Policy WQUAL.1 *Identify values of surface water, groundwater, and water in coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands, and formulate freshwater objectives in accordance with the NPS for FM 2014; and Manage discharges and land use activities to maintain water quality, or improve it, to ensure freshwater objectives are met.*
- Policy WQUAL.2 *In managing water quality, particular regard will be had to the following contaminants: nitrogen; phosphorus; sediment; microbiological contaminants.*
- Policy WQUAL.4 *Improve water quality by: identifying water bodies that are not meeting freshwater objectives; specifying targets to improve water quality within these water bodies and implementing management frameworks to meet the targets within defined timeframes taking into account; the values supported by the water body/ies; national or legislative standards and requirements; the benefits and costs associated with achieving improvement in water quality.*

- Policy WQUAL.6 *Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of water resources.*
- Policy WQUAL.7 *Prefer discharges of contaminants to land over discharges of contaminants to water, where: a discharge to land is practicable; the adverse effects associated with a discharge to land are less than a discharge to water.*
- Policy WQUAL.8 *Avoid the direct discharge of sewage, wastewater, industrial and trade waste and agricultural effluent to water unless these discharges have undergone treatment.*
- Policy WQUAL.9 *Where practicable, manage the siting and operation of activities that result in point source discharges of contaminants to land to ensure that adverse effects on groundwater, surface water and coastal water quality are avoided, remedied or mitigated.*
- Policy WQUAL.11 *Integrate the management of land use, water quality, water quantity, coast and air, and the use, development and protection of resources wherever possible to achieve the freshwater objectives formulated in accordance with Policy WQUAL.1.*

Comment

Objective WQUAL.1 establishes water quality goals for the region. As stated above, if the applicant is operating in accordance with the application and all of the proposed measures it is likely that the activity may result in water quality being managed in a way that meets the reasonably foreseeable needs of future generations and may safeguard the life-supporting capacity of water and related ecosystems, in particular the Makarewa and Oreti Rivers and the New River Estuary. However, the ability to manage the ongoing effects of the activity is dependent on having certainty as to the likely future effects. This is not certain as the final upgrade option, and proposed timing of the upgrade, has not been confirmed so the exact level of effects is uncertain. Therefore in my opinion, the application is inconsistent with this provision.

Objective WQUAL.2 is of relevance, as it directs decision makers and applicants to have specific regard to water quality within lowland waterbodies and lagoons. It directs that water quality within these bodies shall be improved and any decline in water quality shall be halted. In this case, the Makarewa River is classified as a lowland water body. The evidence provided by the applicant suggests that water quality within the river will be maintained at its current level for the next 15 years, and then enhanced to a slightly better level but not improved (as the proposed limits are “bottom line” and do not make provision for improvement above that). Therefore, the application is inconsistent with this provision.

Policy WQUAL.1 relates to the overall management of water quality within Southland. The key section of this policy is subsection (b), which relates to the management of discharges and land use activities in order to maintain or improve water quality. The application may result in the maintenance of water quality within the Makarewa River, but given the lack of certainty, it is unclear if water quality will be improved above “bottom line” requirements. Therefore, the application is inconsistent with this provision.

Policy WQUAL.2 is also relevant. This policy directs that in managing water quality particular regard is had to the levels of contaminants, including nitrogen and phosphorus. The application focusses on nitrogen and phosphorus as key contaminants requiring addressing in the discharge.

Policy WQUAL.4 relates to improving catchment water quality. This is to be achieved by identifying waterbodies that are not meeting freshwater objectives. The Oreti catchment has been identified as one where water quality improvements are required. Contaminant catchment limits for the Oreti FMU are scheduled to be in place by 2020. The application does not propose to improve the level of some contaminants present within its discharge such as microorganisms, adopting a “wait and see” approach.

Policy WQUAL.6 sets out that the use, development or protection of water resources can result in social, economic and cultural benefits. In this case, I believe that the application has demonstrated that the use of the site and associated water resources will result in social, economic and cultural benefits. Therefore, the application is regarded as being consistent with this provision.

Policy WQUAL.7 prefers discharges of contaminants to land over discharges of contaminants to water, where a discharge to land is practicable and where the adverse effects associated with a discharge to land are less than a discharge to water. The application considered the discharge of contaminants to land as an alternative to the proposed system, but discounted it, citing economic grounds (due to the high land purchase costs). It is considered that discharge of treated wastewater to land is technically feasible and would be preferable to a direct discharge to water, but is not practicable, given the economic burden it would place on the applicant. Therefore, the application is regarded, on balance, as being consistent with this provision.

The application is proposing continuation of treatment of the various wastewater streams prior to discharge to the receiving environment. The application is therefore consistent with Policy WQUAL.8.

The applicant’s plant and treatment ponds system are in an existing location, and cannot be relocated. The applicant has provided information within the application that demonstrates that effects on groundwater are able to be mitigated. The application is therefore consistent with Policy WQUAL.9.

In summary, overall I consider that the proposed activity is inconsistent with some water quality objectives and policies as it is likely to only maintain, not potentially enhance water quality in the area.

Water Quantity

Objective WQUAN.1 *Flows, levels and allocation regimes of surface water and groundwater in the region are developed in accordance with the NPS for FM 2014 to: safeguard the life-supporting capacity of water, catchments and related ecosystems; support the maintenance or improvement of water quality in accordance with Policy WQUAL.1; meet the needs of a range of uses, including the reasonably foreseeable social, economic and cultural needs of future generations; comply with limits or targets set to achieve freshwater objectives.*

Objective WQUAN.2 *The allocation and use of Southland’s water resources is efficient.*

Policy WQUAN.2 *Avoid over-allocation of surface water and groundwater, and resolve any historical instances of over-allocation, while recognising the special provisions made for the Waiau catchment.*

Policy WQUAN.3 *Recognise the finite nature of water resources and catchments and identify management regimes in accordance with the NPS for FM 2014.*

Policy WQUAN.6 *Ensure that any water taken from surface water or groundwater is used efficiently. Where fresh water bodies are approaching full allocation, consider establishing management provisions to maximise the benefits of using any available water.*

Policy WQUAN.7 *Recognise the social, economic and cultural benefits that may be derived from the use, development or protection of water resources.*

Policy WQUAN.8 *Integrate the management of land use, water quality, water quantity and use and development of resources wherever possible.*

Comment

The application is consistent with the above provisions. This is because the proposed abstraction will be required to be metered and the taking of the water should not result in the over allocation of the Oreti River surface water resource.

Beds of Lakes and Rivers

Objective BRL.1 *All significant values of lakes and rivers are maintained and enhanced.*

Policy BRL.2 *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.*

Comment

The applicant has an existing intake for its water abstraction point, which will require periodic maintenance to ensure it is clear of debris. It has documented appropriate mitigation measures which will be used when undertaking maintenance activities. The activity is therefore considered to be consistent with both the above objective and policy.

Rural Land and Soils

Objective RURAL.1 *Achieve sustainable use of Southland’s rural land resource, in respect of: agriculture and primary sector activities; subdivision, use and development activities; earthworks and vegetation clearance activities; the use of soil resources; mineral extraction activities; and on-site wastewater systems.*

Objective RURAL.2 *Safeguard the life-supporting capacity, mauri and health of soils in rural areas, and prevent or minimise soil erosion and sedimentation from land use soil disturbance.*

Policy RURAL.1 *Recognise that use and development of Southland’s rural land resource enables people and communities to provide for their social, economic and cultural wellbeing.*

Policy RURAL.5 *The effects of rural land development shall be sustainably managed and land management practices encouraged.*

Comment

The application is largely consistent with objectives and policies for sustainable rural land use activities. This application has been considered with regard to environmental, economic, social and cultural values. The applicant’s site is within a rural area and is surrounded by farmland used for pastoral grazing. The application outlines mitigation measures to be adopted to manage the vulnerabilities of the soils on the site. So the application is considered to be consistent with these provisions.

The key provision is Policy RURAL 5. All of the matters listed in this policy have been considered by the applicant, with the effluent disposal are being chosen in order to minimise soil compaction. The applicant has also proposed mitigation measures that will address the factors listed within this policy, primarily soil health.

Coast

Objective COAST.3 *Coastal water quality and its ecosystems are maintained or enhanced.*

Policy COAST.5 *Avoid, remedy or mitigate adverse effects of land-based activities on coastal water quality and its ecosystems.*

Comment

The application indicates that the nutrient loading within the New River Estuary is likely to be reduced as a result of the proposed upgrade, but there is uncertainty regarding the level of reduction to be achieved and the resultant effects. Therefore, in my opinion the application is inconsistent with these provisions.

Air Quality

Objective AQ.1 *Enable the discharge of contaminants into air while managing the adverse effects of those contaminants on human health and wellbeing, and the environment.*

Policy AQ.1 *Avoid, remedy or mitigate the adverse effects of discharges of contaminants to air on human health, cultural and amenity values and the environment.*

Policy AQ.4 *Maintain or enhance air quality in areas where compliance with national environmental standards or guidelines for ambient air quality has been achieved or surpassed.*

Comment

The applicant's proposed air discharges will enable the discharge of contaminants to air. The applicant has proposed mitigation measures to address the effects of their discharges to air.

The applicant's dispersion modelling assessment (which used guideline values protective of human health for comparative purposes) has indicated that current air quality in the area will be maintained. Future reductions in PM₁₀ emissions from the CFBs will enhance local air quality. The current level of control technology used on the applicant's CFBs is not the best practicable option, and this is acknowledged in the application via the proposed reduction of PM₁₀ concentration in the discharge from the CFBs.

The application is therefore consistent with the above objective and policies.

3.7 Relevant provisions of the relevant regional plan objectives, policies and rules (Section 104(1)(b)(v))

Regional Water Plan

The policies of the Regional Water Plan that are relevant to this application have been grouped according to topic:

Water Quality

- NPS-FW Policy A4 *When considering any application for a discharge the consent authority must have regard to 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 on the health of people and communities as affected by their secondary contact with fresh water. 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, and the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided. This policy applies to the following discharges (including a diffuse discharge by any person or animal) a new discharge or a change or increase in any discharge.*
- Objective 2 *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 *To maintain and enhance the quality of surface water bodies.*
- Objective 4 *To manage the discharge of contaminants and encourage best environmental practice to improve the water quality in surface water bodies classified as hill, lowland (hard bed), lowland (soft bed) and spring fed, and in particular to achieve a minimum of 10 percent improvement in levels of the following water quality parameters over 10 years from the date this Plan became operative (January 2010):*
(a) microbiological contaminants;
(b) nitrate;
(c) phosphorus;
(d) clarity.
- Policy 1 *Recognise the different characteristics of the surface water body classes when managing discharges and apply water quality standards established under any Water Conservation Order.*
- Policy 1A *Take into account Iwi Management Plans.*
- Policy 3 *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 *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”.*

- Policy 7 *Prefer discharges to land over discharges to water where this is practicable and the effects are less adverse.*
- Policy 8 *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.*
- Policy 9 *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.*

Comment

Objective A4 of the NPS-FW is applicable to the proposed discharge to the Makarewa River as the application has indicated that the nature of the discharge will change (albeit over a long timeframe). Given there is no proposal to improve microbial levels in the discharge, there is a risk that secondary contact with the discharge downstream could impact upon the health of resource users. The application has indicated that ammonia levels in the discharge will be reduced but this is not slated to occur for a considerable length of time (15 years). There is potential for ongoing chronic effects on in-stream native biota until the upgrade occurs. Therefore, the application is inconsistent with Objective A4.

The application is inconsistent with Objectives 2, 3 and 4.

The current discharge (which is proposed to continue for a further 15 years) is indicated in the application as potentially causing chronic ammonia effects and a reduction in clarity that occasionally exceeds consented limits.

The proposed upgrade is likely to maintain the in-river water quality but there is no evidence to suggest that water quality will be enhanced (as stated in Objective 3).

The proposed upgrade will not result in the minimum 10% improvement to the listed contaminants by 2020 (i.e. 10 years from date the RWP was made operative) as required by Objective 4.

The proposed upgrade will not result in a reduction in water quality, so it is consistent with the provisions of Policy 3. However, some proposed pre and post-upgrade in-river limits do not meet the Lowland Soft Bed standards, so the application is inconsistent with Policy 4.

The application is for a discharge to water. There is a small proportion of the treated wastewater that will be applied to land but this will be removed once the proposed upgrade occurs. The application of treated water to land is technically feasible but not practicable as it would be financially very onerous on the applicant (due to land acquisition costs). The application is considered, on balance, to be consistent with Policy 7.

The applicant is proposing temporary storage of treated wastewater during periods of low flow in the Makarewa River, with discharge of the stored wastewater back into the river once flow conditions become suitable for direct discharge. This is considered consistent with Policy 8.

The applicant has considered the nature of the receiving environment (including the tidal nature of the area) when assessing the proposed size of its mixing zone. However, Dr Ryder has expressed concern as to the appropriateness of the mixing zone size, primarily due to a lack of evidence that significant toxic effects within the mixing zone would be avoided by proposed conditions. The application is therefore considered to be inconsistent with Policy 9.

The application and this report have taken the relevant Iwi Management Plan (Te Tangi a Tauira) into account.

Water Quantity

Objective 5	<i>To have sufficient water to support current and future generations.</i>
Objective 7	<i>Maximise the efficiency of water use.</i>
Objective 9	<i>To ensure that the total volume and rate of groundwater abstraction is sustainable.</i>
Policy 14	<i>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.</i>
Policy 14A	<i>Determining the term of a water permit</i>
Policy 17	<i>Instigate appropriate water conservation procedures</i>
Policy 21	<i>To ensure that the rate of abstraction and abstraction volumes specified on water permits to take and use water are no more than reasonable for the intended end use.</i>

Comment

The application is consistent with the above provisions. This is because the proposed abstraction will be metered and the taking of the water should not result in the over allocation of the Oreti River.

Soil Quality

Objective 9A	<i>To manage discharges onto or into land so that the quality and structure of soil resources are maintained.</i>
Objective 9B	<i>To manage discharges onto or into land so that adverse effects on human health are avoided.</i>
Policy 31C	<i>Manage discharges of contaminants onto or into land</i>
Policy 31D	<i>Beneficial reuse</i>

Comment

The applicant is proposing to apply treated wastewater and WAS to land and has outlined appropriate mitigation measures to manage the effects on soils from these discharges. It is considered that the proposed discharges are a beneficial reuse of the wastes. Therefore, the application is consistent with the objectives and policies in this regard.

River Beds

- Objective 10 *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.*

Comment

The applicant will need to undertake maintenance works on its existing intake structure, to remove debris. The application has outlined management measures to minimise bed disturbance, and it is considered to be consistent with Objective 10 and Policy 32.

Proposed Southland Water and Land Plan

The proposed Southland Water and Land Plan (pWLP) was notified by the Council on 3 June 2016. Whilst not given the same weight as the provisions within the Water and Land Plan when making a determination on the application under Section 104(1) (b) regard must (subject to Part 2 of the Act) be had to the provisions of any proposed plan.

The relevant objectives and policies of the pWLP are:

Ngai Tahu

- Objective 3 *The Mauri of waterbodies provides for the health of the people, environment and the waterbody.*
- Objective 15 *Taonga species and related habitats are recognised and provided for.*
- Policy 1 *Enable Papatipua Runanga to effectively undertake their Kaitiaki responsibilities in freshwater and land management through the methods listed in the Policy.*
- Policy 2 *Take into account Iwi Management Plans.*
- Policy 3 *To manage activities that adversely affect Taonga species identified in Appendix M.*

Comment

Te Tangi a Taurira, and the views of Te Runanga o Ngai Tahu and Te Ao Marama Inc have been taken into account in assessing the application. Te Ao Marama Inc on behalf of Ngai Tahu, submitted on the application. Te Ao Marama Inc have also undertaken a cultural impacts assessment in relation to the application. The application is therefore consistent with the above provisions.

Physiographic Zone Policies

- Policy 6 *In the Gleyed physiographic zone, avoid, remedy, or mitigate adverse effects on water quality from contaminants, by:*
1. *requiring implementation of GMPs to manage adverse effects on water quality from contaminants transported via artificial drainage and lateral drainage;*

2. *having particular regard to adverse effects on water quality from contaminants transported via artificial drainage and lateral drainage when assessing resource consent applications and preparing or considering management plans.*

Policy 10

In the Oxidising physiographic zone, avoid, remedy, or mitigate adverse effects on water quality from contaminants, by:

1. *requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via deep drainage and lateral drainage;*
2. *having particular regard to adverse effects on water quality from contaminants transported via deep drainage and lateral drainage when assessing resource consent applications and preparing or considering management plans;*
3. *strongly discouraging the granting of resource consents for additional dairy farming of cows and additional intensive winter grazing.*

Comment

The physiographic zones relate to the classification of land and risks to water quality based on factors including soil type, landscape classification, climate, topography and water chemistry. These have been developed to better understand Southland’s water and why water quality in some areas is better than others. Whilst particularly relevant to land use activities such as farming, these policies are still relevant to this application.

In assessing the actual and potential effects of the discharges to land and those discharges which may affect water quality, the applicant has, in part addressed the factors listed in the above policies and the factors which contribute to the classification of the land into certain zones. Therefore, it is likely that if the above policies were considered with their full weight, that the activities would be generally consistent with these provisions.

Water Quality

Objective 6 *There is no reduction in the quality of freshwater and water in estuaries by maintaining water quality where it is not degraded and improving it where it has been degraded by human activity.*

Objective 8 *Groundwater quality.*

Policy A4 NPS *Policy A4 of the NPS 2014.*

Policy 13 *Manage land use activities and discharges to land and water so that water quality and the health of humans, domestic animals and aquatic life, is protected.*

Policy 14 *Prefer discharges to land, rather than direct discharges to water.*

Policy 15 *Maintain and improve water quality by the methods listed in the full policy.*

Comments

The activity is generally inconsistent with Objective 6. This is because the discharge to water is likely to only maintain water quality and not improve it. Based on the information contained in the application, it is likely that if all of the mitigation measures offered by the applicant are adopted, if best practice is

followed and the proposed wastewater treatment plant upgrade is implemented, that the activities may result in the maintenance of water quality. There is, however, considerable uncertainty that the upgraded discharge to the Makarewa River will result in improvement to future water quality.

Policy 13 relates to the protection of water quality and the health of humans and aquatic life. As the application may only result in the maintenance of water quality within the Makarewa River, it is unlikely to achieve the protection of water quality or aquatic life. Therefore, the application is inconsistent with this provision.

As the application is primarily for the discharge to contaminants to water rather than land, the application is inconsistent with Policy 14. This is because the policy expresses a preference for a discharge to land. Whilst it is recognised that the applicant is proposing to improve the quality of the discharge, it will still remain a discharge primarily to water, particularly post-upgrade, when irrigation of treated wastewater to land is proposed to cease.

Policy 15 relates to the overall management of water quality within Southland. The key section of this policy relates to the management of discharges and land use activities in order to maintain or improve water quality. The application may result in the maintenance of water quality within the Makarewa River, but given the lack of certainty, it is unclear if water quality will be improved above “bottom line” requirements. Therefore, the application is inconsistent with this provision.

The activities are consistent with Objective 8. This is because the applicant has provided information within the application that demonstrates that effects on groundwater are able to be mitigated.

In summary, the proposed activity is generally inconsistent with water quality objectives and policies in likely only maintaining, not potentially enhancing or protecting water quality in the area.

Water Quantity

Objective 9	<i>Water quantity and allocation management</i>
Objective 11	<i>Allocation and efficient use</i>
Policy B7	<i>Policy B7 of the NPS for Freshwater 2014</i>
Policy 20	<i>Management of Water Resources</i>
Policy 21	<i>Allocation of water</i>
Policy 22	<i>Management of the effects of groundwater and surface water</i>

Comment

The application is consistent with the above provisions. This is because the proposed abstraction will be metered and the taking of the water should not result in the over allocation of the Oreti River.

Structures and Bed Disturbance Activities

Objective 16	<i>Public access is maintained except where public health and safety are at risk</i>
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Policy 27 *Structures and bed disturbance activities of rivers and lakes*

Comment

The applicant will need to undertake maintenance works on its existing intake structure, to remove debris. The application has outlined management measures to minimise bed disturbance, so it is consistent with the above provisions. Whilst access to the discharge point and river may be restricted, this is likely to be for health and safety reasons. This is consistent with Objective 16.

Consideration of Resource Consents

Objective 1 *Land, water and associated ecosystems are managed as integrated natural resources.*

Objective 2 *Water and land is recognised as an enabler of economic, social and cultural wellbeing.*

Objective 13 *Enable the use and development of land and soils subject to effects on soil health, cumulative effects on human health being avoided and adverse effects on ecosystems and other values are avoided, remedied or mitigated.*

Objective 18 *All activities operate at good environmental practice or better to optimise efficient resource use and protect the region’s land, soil and water from quality and quantity degradation.*

Policy 39A *Integrated management*

Policy 40 *Determining the term of resource consents*

Policy 41 *Matching monitoring to risk*

Policy 42 *Consideration of water permit applications*

Comment

In relation to Objective 1, there are significant interactions between freshwater, land and associated ecosystems as part of this application. However, integrated management is difficult to achieve through the consent process. Despite this, improving integrated management is potentially achievable as the applicant’s proposal to change the quality of the discharge and the proposed upgrade, including changes to what is discharged to land may lead to maintained water quality.

If the Commissioners adopt the proposed changes to the consent conditions appended to this report, it is considered that the level of monitoring on the proposed consents will be comparable in magnitude to the level of environmental risk. Therefore the application is consistent with Policy 41.

The application is consistent with Policy 42. This is because the proposed abstraction will be metered and the taking of the water should not result in the over allocation of the Oreti River.

The economic and social contribution of the site and activities is acknowledged. This is consistent with Objective 2.

The applicant has demonstrated that it will be able to use land and soils on the site in a way which mitigates adverse effects on ecosystems and soil health. This is consistent with Objective 13.

The application is generally consistent with Objective 18. It is considered that the activities and the upgrades will be undertaken using the best practicable option, rather than best practice. With regard to this application, this means that the applicant may well be operating at a good environmental practice level, but it could consider doing more or doing what it has proposed sooner than outlined. If this was the case, then the activities would be considered to be consistent with this objective.

Freshwater Management Unit Policies

Objective 7	<i>Avoid over allocation of water quality and quantity and phase out existing over allocation in accordance with timeframes established under the FMU process.</i>
Policy 44	<i>Implementing Te Mana o te Wai</i>
Policy 45	<i>Priority of FMU policies and rules</i>
Policy 46	<i>Identified FMUs</i>

Comment

The above provisions relate to the identification of Freshwater Management Unit (FMUs) and the subsequent development of policies and rules. As part of this process, it is likely that water quality and quantity limits will be set for each FMU. This is part of the process of addressing water quality and the direction provided by the NPSFM.

The site is located within the Oreti FMU and the applicant has signposted that it wishes to be part of the catchment wide response to water quality when this process starts. However, at this stage downstream receiving water quality is likely to be maintained but the application does not provide certainty that it will be improved above “bottom line” requirements of the NPS, which will likely inform the FMU process.

Conclusion to Policy Assessment – Regional Water, and Proposed Water and Land Plan

The activities have been considered against all relevant provisions of the RWP and the pWLP.

The key policies from the RWP related to water quality, soil health and water quantity. It is considered that the activities are consistent with most relevant provisions, excepting those relating to water quality.

The key policies in the pWLP related to directions around protecting, maintaining and improving water quality. As with the RWP, it is considered that the activities are generally consistent with most relevant provisions, except those relating to water quality.

In this policy assessment, greater weight has been given to the provisions of the RWP. This is because the pWLP has only just been notified and has not been through the formal plan consideration process. The placing of too much weight on the provisions in the pWLP may lead to circumstances of injustice on the applicant. With regard to the proposed activities, there has not been a significant shift in Council policy within the plan. As such, it is considered appropriate that greater weight is placed on the provisions of the operative plan (the RWP).

Regional Coastal Plan

The objectives and policies of the Regional Coastal Plan that are relevant to this application are:

Objective 6.2 *Maintain and enhance the values of New River Estuary*

Policy 6.2.1 *To maintain and enhance the natural character of New River Estuary.*

Comment

The application indicates that the nutrient loading within the New River Estuary is likely to be reduced as a result of the proposed upgrade, but there is uncertainty regarding the level of reduction to be achieved and the resultant effects. Therefore, the application is inconsistent with these provisions insofar that they require enhancement of New River Estuary.

Regional Effluent Land Application Plan

The objectives and policies of the Regional Effluent Land Application Plan that are relevant to this application are:

Objective 4.1.1 *Ensure life supporting capacity of soil is safeguarded.*

Objective 4.1.2 *Ensure water quality and its life supporting capacity is safeguarded.*

Objective 4.1.4 *To ensure that amenity values are not adversely affected by discharges of effluent and sludge onto or into land.*

Objective 4.1.5 *To recognise and provide for the relationship of takata whenua with ancestral sites, wahi tapu and other taoka.*

Policy 4.2.1 *Sustainability of the soil ecosystem.*

Policy 4.2.2 *Utilise land treatment of effluent where it can be undertaken in a sustainable manner and without significant adverse effects.*

Policy 4.2.3 *Avoid where practicable, remedy or mitigate adverse effects on water.*

Policy 4.2.7 *Good practice and maintenance.*

Policy 4.2.8 *Recognise and provide for takata whenua concerns related to the discharge of effluent and sludge onto or into land.*

Policy 4.2.9 *Ensure amenity values are not adversely affected by effluent disposal.*

Comment

The proposed discharge is consistent with the above objective and policies regarding effluent discharges to land.

Objective 4.1.2 aims to ensure that water quality and its life-supporting capacity is safeguarded from the adverse effects of discharges of effluent onto, or into land. The applicant has assessed the risk of this in

its application. It is considered that the application is consistent with the matters raised in the objectives and policies, as the discharge of effluent to land will result in the safeguarding of water quality. The applicant has indicated that a management plan will be prepared and implemented, outlining all measures used to manage the effects from the land application of treated wastewater and WAS. The description of the application activities indicates that the activities are considered to be able to be undertaken sustainably without significant adverse effects.

The consideration of Te Tangi a Tauri (Iwi Management Plan) and the notification of TRONT and TAMI are consistent with Policy 4.2.8.

The applicant is proposing to adopt various measures for the effluent land application which are considered acceptable practice. This is consistent with Policy 4.2.7.

Regional Air Plan

The Regional Air Quality Plan contains the following objectives and policies and rule of relevance to the application:

Objective 4.2.1	<i>To maintain good ambient air quality for Southland.</i>
Objective 5.2.1	<i>To avoid, remedy or mitigate any adverse effects upon the environment (including the health of people and communities and amenity values) from the discharges of contaminants into air from industrial or trade premises.</i>
Objective 5.2.2	<i>To ensure that Maori cultural and traditional beliefs are recognised and provided for when dealing with discharges of contaminants into air from industrial or trade premises.</i>
Objective 7.2.1	<i>To protect the health of people and communities from any adverse effects from odour discharges.</i>
Objective 7.2.2	<i>To protect areas of cultural and amenity value from any adverse effects from odour discharges.</i>
Policy 4.3.1	<i>Have regard to ambient air quality guidelines (Ministry for the Environment, 1994)</i>
Policy 4.3.5	<i>Protect ambient air quality throughout the Southland Region.</i>
Policy 5.3.1	<i>Protect the environment from adverse impacts from the discharge of contaminants into air from industrial or trade premises.</i>
Policy 5.3.5	<i>Recognise Maori cultural and traditional values with regard to the air environment and ensure that these are taken into account with regard to discharges to air from industrial and trade premises.</i>
Policy 7.3.1	<i>Avoid, remedy or mitigate the impact on the health of people and communities from offensive or objectionable odours.</i>
Policy 7.3.2	<i>Avoid, remedy or mitigate the impact of offensive or objectionable odours on areas of cultural or amenity value.</i>

Comment

Objective 4.2.1 and Policy 4.3.5 seek to maintain and protect ambient air quality throughout the Southland region. Given the potential for effects arising from the applicant's activities on the site that discharge to air, I consider that this objective and policy are relevant.

Objective 5.2.1 and Policy 5.3.1, which seek to protect the environment, including the health of people and communities and amenity values, from the discharge of contaminants to air from industrial or trade premises, are particularly relevant to the consideration of the proposal.

Objectives 7.2.1 and 7.2.2, and Policies 7.3.1 and 7.3.2, relate to odour discharges and are also particularly relevant to the proposal.

I consider that, based on the information contained in the application and Mr Iseli's comments, the proposed discharge of contaminants from the applicant's CFBs could result in more than minor effects in regard to PM₁₀ and SO₂ at some locations, with the potential for human health impacts. So the application is not consistent with Objective 5.2.1 and Policy 5.3.1.

I consider that, based on the information contained in the application, the proposed discharge of odour is likely to result in no more than minor adverse effects i.e. not offensive or objectionable, subject to the mitigation proposed, suitable monitoring, and adaptive management and further mitigation if required.

Objective 5.2.2 and Policy 5.3.5 requires regard to be had to Maori cultural and traditional beliefs. I note that Te Ao Marama Inc has submitted in opposition to the application, citing disagreement with the proposed consent term that was applied for. It has stated that a consent term not exceeding 25 years is its preferred term.

Proposed Regional Air Plan for Southland

The Proposed Regional Air Plan 2014 decision was approved by Council on 30 September 2015. This introduces new rules in response to the NES to address the region's air quality issues.

The plan includes new rules for home heating, outdoor burning, the application of agrichemicals and fertilisers and fire training. All other discharges to air (such as industrial and commercial discharges) will be reviewed in Stage 2 of the Air Plan Review.

As such, there are no provisions relevant to the applicant's proposed discharge at present, so the provisions of the PRAPS are not considered further in this report.

3.8 Any other matters considered relevant and reasonably necessary to determine the application (Section 104(1)(c))

Te Tangi a Taurira

Te Tangi a Taurira is the Iwi Management Plan for Southland. The policies relevant to this application are:

Discharges to Air

- Policy 2 *Ensure that the processes used during activities that discharge to air are supervised and monitored to ensure that contaminant emissions are minimised.*

- Policy 3 *Encourage existing activities that emit contaminants to air to evaluate, and where practicable implement new technologies to reduce adverse effects on air quality.*

- Policy 10 *Ensure that discharges of contaminants into the air such as dust, smoke and odour do not affect the amenity values of areas which are of cultural and historical significance to iwi.*

- Policy 12 *Engage Ngāi Tahu ki Murihiku early in the consenting and permitting process for activities whereby there is discharge to air, particularly agrichemical and aerial spraying/topdressing and activities causing offensive odours. Discharges must not cause objectionable or offensive odour to the extent that it causes adverse effects beyond the boundaries of the consent holder's property.*

- Policy 13 *Advocate for robust consent conditions with a maximum twenty-five years. Changes to consent conditions must be notified to affected parties and all consent conditions monitored routinely.*

Comment

The applicant is proposing to monitor and report on contaminant emissions to air, and has also indicated that it will review technologies with a view to reducing PM₁₀ concentrations in the CFB discharges. Appropriate odour control measures will be implemented and are documented in a management plan. The application is therefore consistent with Policies 2, 3 and 10.

Despite consultation with iwi prior to lodgement, the applicant applied for a consent term for its air discharge consent of 35 years, which is inconsistent with Policy 3.

Water Quality

- Policy 6 *Avoid the use of water as a receiving environment for the discharge of contaminants. Generally, all discharge must be first to land.*

- Policy 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).*

- Policy 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.*

- Policy 16 *Require that large scale wastewater disposal operations develop environmental management plans, including contingency plans to cope with any faults, breakdowns, natural disasters, or extreme weather events.*
- Policy 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.*
- Policy 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.*

Comment

The application is for discharges of treated wastewater to both water and to land, so it is partially consistent with Policy 6. The applicant has used appropriate standards on which to base the assessments so it is consistent with Policy 10. The applicant is proposing monitoring of the various discharges and their effects so it is consistent with Policy 15.

The applicant has prepared an Environmental Management Plan, which outlines mitigation and management measures for its treated wastewater discharge. This is consistent with Policy 16.

As with the air discharge consent, the applicant applied for a consent term for its wastewater discharge consent of 35 years, which is inconsistent with Policy 18.

The applicant is proposing to undertake reviews of aspects of its wastewater treatment activities, which is considered to be consistent with Policy 19.

Water Quantity - Abstractions

- Policy 1 *Adopt the precautionary principle when making decisions on water abstraction resource consent applications, with respect to the nature and extent of knowledge and understanding of the resource.*
- Policy 4 *In the Southland Plains region, the preference of Ngai Tahu ki Muribikū is for water takes from bores, as opposed to surface water abstractions.*
- Policy 17 *Advocate for durations not exceeding 25 years on resource consents related to water abstractions.*

Comment

The application is consistent with the above provisions. This is because the proposed abstraction will be metered and the taking of the water should not result in the over allocation of the Oreti surface water resource.

Ambient Air Quality Guidelines

AAQGs (MfE 2002), like the NES standards, are values for ambient concentrations of atmospheric contaminants that have been set as values for the protection of human health and the environment. Unlike the NES Standards, the AAQGs are not mandatory values. However, the AAQGs are used to assess the effects of discharges of contaminants to air. The operative Air Quality Plan for Southland refers to the 1994 AAQGs. The 2002 AAQG replace the 1994 AAQG.

The dispersion modelling in the application indicates compliance with the relevant AAQGs.

3.9 Value of investment of the existing consent holder if an application affected by Section 124 (Section 104(2A))

Section 104(2A) requires the Council to have regard to the value of the investment of the existing consent holders where a consent holder is applying for a replacement consent.

Consideration was given to the fact that the applicant has existing consents which authorise the activities on the site.

The application noted that the Lorneville plant provides the applicant with its only processing capacity for lambs and sheep within the Southland region and any reduction in the plant's capacity to process lambs and sheep would see this livestock processed outside the region.

The application estimates the latest replacement costs for the Lorneville plant (December 2014) is \$240 million and much of this value is sunk i.e. it could not be recovered if the plant was forced to downsize, close or be relocated.

3.10 Section 104(3)(c) Matters

Under Section 104(3)(c), the consent authority must not grant a resource consent contrary to Section 217 of the Resource Management Act 1991.

Section 217(2) states that:

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.*

Comment

There is a Water Conservation Order (WCO) on the Oreti River, which was enacted in 2008 (*Water Conservation (Oreti River) Order 2008*). It specifies various outstanding characteristics, features, and values which accord protection for the river. They are brown trout habitat, angling amenity, black-billed gull habitat and significance in accordance with tikanga Māori.

The provisions of the WCO do not apply to the locations where the applicant's water abstraction or discharge to water occur, so the WCO provisions are not considered further in this report. This is considered to be consistent with the provisions of Section 104(3)(c) of the RMA.

3.11 Section 105 matters relevant to discharge or coastal permits

Under Section 105 of the Resource Management Act, the Council must consider the following:

- (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.*

Comment

The provisions of Section 105 have been considered by Council in this report. The Commissioners will need to consider the proposed activity in accordance with the requirements of Section 105.

In summary, the discharge comprises predominantly treated meat processing wastewater with an element of treated human wastewater (from Wallacetown). The contaminants included in the treated wastewater are nutrients, organic matter and microbial contaminants. The receiving environment includes groundwater and surface water, including surface waterways (Makarewa River, Oreti River) and an estuarine environment (New River Estuary). The sensitivity of the area to emissions to air has also been discussed.

The nature of the soils surrounding the plant limits the extent to which discharges to land can occur. Therefore, only a limited amount of the treated wastewater can be discharged to land via irrigation, and only to certain areas of the property where the soil type is appropriate and it is conducted at a sustainable nitrogen loading rate.

The majority of the treated wastewater is discharged to the Makarewa River. The nature of the receiving environment has been described in the application. The application identifies that the current discharge quality cannot achieve the national and possibly the likely regional water quality limits for ammonia. The applicant is proposing to upgrade the wastewater treatment system in order to achieve a measurable reduction in ammonia and phosphorus discharges to the receiving environment. Economic considerations have naturally been a factor in the applicant's decision to continue to discharge to the Makarewa River.

The application has assessed various alternatives for the upgrade of the treatment system to discharge to the Makarewa River, including discharge to land of all treated wastewater.

The application describes the nature of the air discharges. The contaminants include fine particulate matter (PM₁₀), sulphur dioxide and odour. The receiving environment is the rural land surrounding the Lorneville site, which includes some residential dwellings. The surrounding area is zoned for rural purposes, and a buffer exists between the on-site activities and any sensitive off-site receptors.

The application outlined that there are no alternative discharge methods for the discharges to air. An alternative location for the discharges is not practicable because the location of the plant cannot be changed. The application has shown that the discharge will remain compliant with relevant standards and guidelines.

Mitigation measures are in place to address odour effects.

It is considered that the application adequately addressed the provisions of s105 of the Act.

3.12 Section 107 restrictions on grant of certain discharge permits

Section 107(1) of the Resource Management Act states that, except in particular circumstances (specified in s107(2)), a consent authority shall not grant a discharge permit 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.*

If one of more of the above effects will arise, under s107(2), the consent authority may only grant the discharge permit if it is satisfied:

- (a) *That exceptional circumstances justify the granting of the permit; or*
- (b) *That the discharge is of a temporary nature; or*
- (c) *That the discharge is associated with necessary maintenance work—*

and that it is consistent with the purpose of the Resource Management Act to do so.

S107(3) allows the consent authority to include conditions throughout the term of the permit to ensure that the discharge can meet the requirements of s107(1) by the expiry date.

Comment

The applicant acknowledges that the discharge can cause scums and foams, but has outlined measures to ensure that these are minimised and has proposed ongoing monitoring.

The discharge can reduce visual clarity downstream, however because the Makarewa River is already characterised as being of low visual clarity, the change is not considered to be conspicuous.

The discharge to water will not give rise to emission of objectionable odours. It is anticipated that the discharge (after reasonable mixing) would not render the in-river flow unsuitable for stock.

The current discharge, whilst causing effects on in-river values, is not considered to be causing any significant adverse effects on aquatic life. The application is proposing an upgrade of the wastewater treatment system to improve treated discharge and in-river water quality.

I consider that the proposed discharge of treated wastewater to water, as described in the application, meets the requirements of Section 107(1).

3.13 Part 2 of the Resource Management Act 1991

This application is consistent with the purpose and the principles of the Act, as set out in Section 5. The proposed activities will have no more than minor adverse effects on the ability of the receiving environment to meet the reasonably foreseeable needs of future generations, or on the life-supporting capacity of the land or any ecosystem associated with it. Proposed consent conditions may ensure that any potential adverse effects of the activities will be avoided, remedied or mitigated.

There are no matters of national importance, as outlined in Section 6 of the Act that may be affected by the proposed activities. The application is also consistent with Section 7 of the Act, with particular regard given to the maintenance and enhancement of the quality of the environment. With regard to Section 8 of the Act, the proposed activities are not inconsistent with the principles of the Treaty of Waitangi.

4. Recommendations

4.1 Whether to grant

I recommend that the following consents be granted, subject to the imposition of recommended conditions:

- consent to discharge treated wastewater to land (temporary storage), with a recommended consent term of 15 years;
- consent to discharge treated wastewater to land, with a recommended consent term of 15 years; and
- water abstraction permit and land use consent for the maintenance of the water abstraction site. A consent term of 20 years is recommended.

The proposed timeframe for improvement of the fish screen is five years. As noted by Dr Ryder, the fish screen is currently not operating at “best practice”. Dr Ryder has recommended that the timeframe should be shortened to two years in order for improvements to be made.

In terms of the air discharge consent, taking into account the significant adverse effects of PM₁₀ predicted and the minimal degree of proposed PM emission control, Mr Iseli recommends the following options for granting of the consent:

- grant consent, subject to recommended conditions, for a term of not more than five years. This would allow a comprehensive re-assessment of effects based on five years of ambient monitoring and any updated guidelines applicable at that time. It is probable, although not certain, that a PM_{2.5} standard or other relevant guidance would be developed during that time period;
- grant consent subject to recommended conditions and installation of control technology (such as an ESP) to comply with a PM₁₀ emission limit (including condensable PM) of 50 mg/Nm³ within five years of consent commencement. In these circumstances, a long-term consent could be granted.

The application for the proposed discharge of treated wastewater to the Makarewa River is one where the effects need to be considered carefully. This is because the application is one where there are numerous areas that lack certainty regarding the likely future effects of the treated wastewater discharge. The proposed receiving environment is a surface waterway (Makarewa River) feeding to the Oreti River and New River Estuary, which are all used for numerous recreational activities and have significance for Iwi. Both the Makarewa and Oreti Rivers have degraded in-stream water quality.

The applicant has prepared an application where the proposed upgrade to the wastewater treatment system is predicted to be a better environmental outcome for the receiving environment than the existing treated wastewater discharge. The granting of the consents would lead to continued economic benefits for the Southland region.

It is stated in the application that as long as the activity is undertaken in accordance with the mitigation measures offered in the application then the effects of the activity on the receiving environment will be no more than minor. I do not agree with this conclusion.

Despite the work that the applicant has put into preparing its application and the offered mitigation measures, there is lack of certainty regarding the proposed upgrade of the wastewater treatment system.

Both submitters and the Council have issues with the long timeframe for the treated wastewater discharge upgrade (15 years before it is fully implemented) in which no improvement in discharge quality will occur beyond what is currently being discharged. This is of particular concern.

I hold concerns as to the lack of improvement in receiving water quality after the applicant's proposed upgrade is completed, especially in relation to national and regional policy requirements in respect of water quality. Downstream receiving water quality is likely to be maintained but the application does not provide certainty that it will be improved above "bottom line" requirements.

I would therefore recommend granting of the discharge of treated wastewater to water consent for a term of five years, with conditions similar to those on the current consent. This would allow the applicant to confirm its proposed upgrading option and subsequently provide an application which fully outlines the effects of the selected option, along with evidence that the chosen option will be able to improve downstream water quality in the receiving environment and meet the requirements of national and regional policy directives (including provision for changes to be made to the chosen option when catchment limits are imposed).

The discharge of waste organic material to land (including the proposed monofill) is contingent on the proposed upgrade being implemented, so for the proposed short-term option, it would be inappropriate to grant consent for this activity. I would therefore recommend that the consent be declined, and the consent be reapplied for, with the new application for the discharge to water consent.

Despite my recommendation above, if the Commissioners are of a mind to grant a longer consent term, I would recommend that:

- given the large amount of investigative work that has already occurred, and in order to provide more certainty, it is recommended that the timeframe specified in the consent condition relating to reporting on the selected option for upgrading be shortened to two years, and the deadline for implementation of the chosen upgrade option is shortened to a six years after that (a total of eight years until the upgrade is implemented and operational);
- the discharge of waste organic material to land (including the proposed monofill) is contingent on the proposed upgrade being implemented. Given the above recommendation regarding the

longer term discharge to water consent, I would recommend that the consent be granted with an extended lapsing date to accommodate the upgrading process; and

- a consent term for both the discharge to water and discharge of waste organic material to land be granted for no longer than 15 years.

My recommendations, as set out above, will be updated at the hearing, in light of the applicant's and submitters' presentations.



Sarah Smith
Consents Officer

27 June 2016