

The Hearing Panel

4 September 2018
10.00 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 Panel. The report is evidence and has no greater weight than any other evidence that the Panel will hear and consider.

Hearing of Application – APP-20181247

White Waters Limited

Compiled by Emily Allan, Consents Officer

- Hearing: The hearing is scheduled to commence at 10:00 am on Tuesday, 4 September 2018 at the Kelvin Hotel, Kelvin Street, Invercargill.
- Application: White Waters Limited (the Applicant) has applied to discharge farm dairy effluent to land and to abstract groundwater for stock drinking water and shed use.
- Site address/location: 893 Kakapo Road, RD 2, Te Anau
- Notification: The application was publicly notified on 29 May 2018 and four submissions were received (one neutral and three in opposition).
- Executive Summary:
1. The application is for the discharge of dairy shed effluent and calving barn effluent to land, and to take and use groundwater for an existing dairy operation.
 2. The pSWLP has been developed to specifically address national direction on water quality and dairy farming, and weight has been put on this plan.
 3. The pSWLP requires good management practice to be implemented, and water quality to be maintained or improved.
 4. The good management practices proposed in the application do not meet current standards, and the application is contrary to the pSWLP's policies in this regard.
 5. The proposed activity will result in adverse effects on water quality greater than those provided for in the plan.
 6. The site location and downstream environment is sensitive, and has high cultural values.
 7. I recommend that the application is declined.

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 and determination of the application for resource consent by White Waters Limited. Section 42A allows Consent Authorities to require the preparation of a report on an application for resource consent and allows the Consent Authority to consider the report at any hearing.

In this report I recommend that the application for both consents is declined. This is because:

- the effects of the discharge on water quality will not be adequately avoided, remedied or mitigated; and
- the effects of the discharge, and how the effluent will be discharged to land, are contrary to policies in the pSWLP, RWP, RELAP and Te Tangi a Tauira.

Associated issues include whether or not there is sufficient effluent storage, the proposed methods of effluent irrigation, the sensitivity of the receiving environment and that the proposed mitigations will not be effective in addressing effects of the discharge on the receiving environment.

I hold no concerns about the abstraction of water and as such my report focuses largely on the discharge to land. However, because the water take and discharge are linked I am also recommending that this consent be declined.

Structure of the report

This report is structured around providing background on the application, discussing the three key issues with the application and the statutory considerations.

1.2 About the author

My name is Emily Allan. I am a Consents Officer employed by the Southland Regional Council. I have been employed by the Council as a Consents Officer since July 2015. I have processed applications for similar activities since the beginning of my employment with the Southland Regional Council.

I hold the following relevant qualifications:

- Masters in Resource and Environmental Planning;
- Postgraduate Diploma in Science in Environmental Management; and
- Certificate in Sustainable Nutrient Management (Intermediate Overseer qualification).

I also have Bachelors' degrees in Geology and Political Science.

For completeness, I have read and agree to abide by the Code of Conduct for expert witnesses in the Environment Court Practice Note 2014.

I have been the officer processing this application since it was lodged and received by Council. I visited the site on 20 April 2018.

1.3 Information relied on in preparation of this report

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

Document Name	Abbreviation/reference name	Writer	Date
Resource Consent Application	the Application	White Waters Ltd (Applicant) and RD Agritech Ltd (Consultant)	Lodged 6 April 2018
Amended Application to revise Dairy Effluent Storage Calculator	the Amended DESC	White Waters Ltd (Applicant) and Quinton Scandrett (Consultant)	Received 15 May 2018
File Note RE Site Visit	Site Visit Summary	Emily Allan, Consent Officer	Site visit 20 April 2018 Written 23 April 2018
Further information request under Section 92(1) of the RMA	Further Information Request	Emily Allan, Consents Officer	Sent 2 May 2018
Further information response (s92(1))	Further Information Response	Quinton Scandrett (Consultant)	Received 15 May 2018
Evidence from Ryder Consulting Ltd	Technical Comment	Greg Ryder, Water Quality Scientist	Received 9 August 2018
Evidence from Irricon Resource Solutions Ltd	Technical Comment	Keri Johnston, Farm Systems Expert	Received 1 August 2018
Resource Management Act 1991	RMA	NA – national legislation	1991 reprint dated 11 July 2018
National Policy Statement for Freshwater Management 2014	NPSFM	NA – national legislation	2017
Southland Regional Policy Statement 2017	RPS	Environment Southland	2012
Regional Water Plan 2010	RWP	Environment Southland	2010
Proposed Southland Water and Land Plan 2016 (decisions version)	pSWLP	Environment Southland	2018 Decisions version released 4 April 2018
Te Tangi a Taura (Iwi Management Plan) 2008	Te Tangi or iwi management plan	Te Rununga o Ngai Tahu and Te Ao Marama Incorporated	2008
Regional Effluent Land Application Plan	RELAP	Environment Southland	1998

The application was lodged on 6 April 2018. I was advised shortly after the application was lodged that there had been a change of consultants from RD Agritech Limited to Dairy Green Limited. Dairy Green Limited adopted application as lodged.

The site visit was undertaken on the 20 April 2018 (refer to appended file note).

A further information request under s92(1) of the RMA was sent to the Applicant and consultant on 2 May 2018, reflecting the matters discussed at the site visit. A response to this request was received from Dairy Green Limited on 15 May 2018. As part of the further information response the Applicant amended the application by providing a revised Massey Pond Calculator. Several changes were made to this calculation.

The application was initially lodged with a land use consent to construct effluent storage. In its 15 May response to our s92(1) request, the Applicant withdrew this component of the application into a separate application and asked for this activity to be put “on hold” through the use of a s37 timeframe extension. This land use consent for the construction of effluent storage was withdrawn by the Applicant on 13 August 2018. This land use consent to construct effluent storage is no longer considered as part of this application. The additional storage application is not required under s91 of the RMA as it is the position of the Applicant that there is sufficient storage capacity available in the existing storage tank. While I disagree with this position, the application as it currently stands does not include the construction of additional effluent storage and it is processed on this basis. This is a point of contention in the application.

2. The application and procedural matters

2.1 The proposed activities

The application is for a suite of permits to allow activities associated with the operation of a dairy farm:

- a Discharge Permit to discharge farm dairy effluent from up to 599 dairy cows to land during the milking season (25 August to 31 May) via slurry tanker (primary irrigation method), Larall Smart Hydrant system and umbilical system; and
- a Discharge Permit to discharge calving pad effluent to land from up to five cows during August, September and October each year via the above effluent discharge system; and
- a Water Permit to abstract and use up to 40,000 litres of groundwater per day for stock drinking and shed wash down water.

These permits are sought to “replace” permits previously held by the Applicant which expired on 26 June 2017.

Further details about the application and relevant planning provisions are:

Water permit	
Relevant rule(s)	RWP: Rule 23(c) – restricted discretionary activity; pSWLP (decision version): Rule 54(a) - permitted activity
Source of water (bore or watercourse)	Existing bore – D43/0108
Groundwater zone/name of watercourse	Te Anau in both RWP and pSWLP
Aquifer type (for groundwater takes)	Terrace
Rate of take (L/s)	2
Freshwater storage onsite? How much?	Yes – 100m ³
Daily volume (m ³ /day)	40 m ³ from bore water + 15 m ³ from Kakapo Rural water supply scheme.
Consistent with 120 L/cow/day? (estimate of efficient use for shed and stock water use)	Less than 120 L/cow/day (approx. 92 L/cow/day)
Yearly volume (m ³ /year)	21,000
Discretionary allocation (m ³ /year)	123,000,000 (RWP) and 118,250,000 (pSWLP)
Amount currently allocated (m ³ /year and % of discretionary allocation)	3,501,614 (RWP) and 3,960,345 (pSWLP) 3% (RWP) and 3.3% (pSWLP)

FDE discharge permit	
Relevant rule(s)	RELAP: 5.4.6 – Discretionary activity; RWP: Rule 50(d) – Restricted Discretionary activity; pSWLP (decision version): Rule 35(c) – discretionary activity.
Cow numbers	599 cows
Stocking rate (cows/ha)	2.6
Winter milking proposed?	No
Other sources of effluent?	Calving pad (5 cows)
Effluent disposal area (ha)	103.5
Irrigation method	Slurry tanker (primary irrigation method) Larall Smart Hydrant system Umbilical system as contingency method.
Application rate and depth	Slurry tanker to depth per application of 5mm; Larall Smart Hydrant system to rate of 10mm/hr and depth of 10mm; and the maximum depth of the umbilical system have not been provided.
Storage available (m ³)	1,500 (pumpable volume 1,100 in original application and 1,238 in amended application).
Massey pond calculator 90% storage requirement (m ³)	<ul style="list-style-type: none"> • 2,885m³ (original lodged with application on 6 April 2018) • 1,107 m³ (revised with further information response on 15 May 2018) • 886 m³ (revised with further information dated 27 July 2018)
Effluent management system	Sump by the yard, to second sump in paddock near dairy shed then pumped to tank.
Monitoring proposed?	None

It is my understanding that the effluent system currently being operated (and proposed) includes:

- effluent being gravity fed from the dairy shed to stone trap; then
- gravity fed from the stone trap to the concreted yard sump; then
- gravity fed from the yard sump to the pump sump in paddock; then
- pumping from pump sump to Hynds “Megapond” concrete storage tank; and
- irrigated to land via a Larall Smart Hydrant system (proposed) and a slurry tanker, with an umbilical system as a proposed contingency irrigation method.

The application in its original form was to discharge effluent primarily through a slurry tanker, which is considered high rate although it can discharge effluent to a low depth.

The application was amended on 15 May 2018 and 27 July 2018 so that it now includes a proposal to discharge effluent from a low rate Larall Smart Hydrant system and a high rate umbilical system. The Larall Smart Hydrant system will be another primary irrigation system utilised by the Applicant as well as the slurry tanker originally proposed, and the umbilical system is a proposed secondary irrigation method.

On the White Waters site the effluent storage tank is located a significant distance uphill from the dairy shed, which requires effluent to be regularly pumped to this secondary location. The set-up of the effluent system requires a large amount of management to operate effectively. The pump sump is approximately 365 m from a waterway, although there are tile drains in very close proximity to the shed and pump sump which drain into this waterway. The tank is approximately 385 m from a

waterway, although there is a tile drain going directly from the tank to this waterway. The risk is high that if effluent overflows or the tank fails, that it will reach a waterway.

A full assessment of the effluent management system and its effectiveness is included later in this report. Expert evidence from Ms Johnston on this system is referred to later in this report.

The Applicant has proposed to use good management practices. I have taken these management practices to also be the mitigation measures. The good management practices proposed are:

- **adherence to standard Council buffer distances between the discharge area and nearby waterways** - this is to reduce the risk of overland flow of effluent into waterways. A 20 metres buffer will be in place from any internal waterways;
- **use of low depth irrigation** - the primary irrigation method for the site is a slurry tanker which is considered high rate, although low depth irrigation. Common good management practice would be for low rate and low depth irrigation. The Applicant has amended the application to include a Larall Smart Hydrant system although this is intended to operate in the shoulder seasons and when conditions are unsuitable for the slurry tanker, and the slurry tanker will be retained as the primary irrigation method.
- **use of an effluent storage tank** - the effluent storage capacity allows for the scheduling of effluent irrigation based on soil moisture deficits, which would decrease the potential for nutrient loss to water.

2.2 Description of the affected environment

What is the Existing Environment?

Section 104 requires consideration of the effect of proposed activities **on the** environment. In accordance with current practice following from case law, I have taken the environment **not include** activities for which consent is sought, nor the effects arising from them.¹ The environment does, however, include permitted activities being undertaken and their environmental effects.

The discharge and water permits previously held expired in July 2017. Therefore, I have considered the application and its effects as if it was for a new discharge of effluent to land and a new water take. The effect on the environment for consideration is the whole effect of discharging effluent to land and of taking and using water, even though those activities have previously lawfully been undertaken.

As the Applicant is not proposing to increase cow numbers or expand the farm boundary, the use of land for farming is a permitted activity (in accordance with Rule 20 of the pSWLP). The environment does, therefore, include the effects of this permitted activity being undertaken.

¹ *Port Gore Marine Farms v Marlborough District Council* [2012] NZEnvC 72. Paragraph 140. *D R Sampson & Others v Waikato Regional Council* RMA741/99, RMA745/99, A178/2002 *Ngati Rangī Trust v Manawatu-Wanganui Regional Council* [2016] NZHC 2984. Paragraph 64. *Ngati Rangī Trust v Manawatu-Wanganui Regional Council* [2016] NZHC 2984 citing Derek Nolan *Environmental and Resource Law* (5th ed. Lexis Nexis, Wellington, 2015) at 610.

Overall this means:

- the environmental effects of discharging effluent to land **do not** form part of the existing environment and must be considered afresh, as if these discharges and their effects were not currently occurring;
- the environmental effects of taking and using groundwater **do not** form part of the existing environment and must be considered afresh, as if the take and use were not currently occurring; and
- the use of land for dairy farming, and effects associated with this land use, **are** part of the existing environment. However, as this is a permitted land use, an assessment of their effects is out of scope of this application.

The Physical Environment

The property is 227 hectares of land which is located approximately 11 km north-east of Te Anau. Dale Road forms the north-eastern boundary of the property and Kakapo Road is the south-eastern boundary. The Applicant has provided a description of the physical location of the site in their application and it is not in contention, so it has not been reproduced here.



Figure 1: Photo of effluent storage tank looking out over property. The dairy shed is located down past the trees.



Figure 2: The pump sump near the dairy shed. This has been included in the revised Massey Pond Calculator as effluent storage.

Soils and physiographic zones

The soils within the effluent area are outside the mapped coverage for Topoclimate and SMaps. Site investigations were undertaken prior to the previous consent application in 2012 by the late Bill Risk. The Applicant has used the information from Bill Risk and concluded in Section 1.2 of the application (page 6) that the dominant soil types on the property are Te Anau and Kakapo, with a small area of Otanomomo soils. I am adopting this information from the application as part of this recommending report.

The following table represents the vulnerabilities for the soil types mentioned above based on the Topoclimate information held for these soils. The Topoclimate technical information sheets are attached.

Soils	Dominant Soil Type	Vulnerability Factors identified by Topoclimate		
		Structural Compaction	Nutrient Leaching	Waterlogging
	Te Anau	Minimal	Severe	Slight
	Kakapo	Slight	Slight	Severe
	Otanomomo	Minimal	Slight	Severe

The Te Anau soils are characterised by good drainage, moderate water holding capacity and high organic matter content. The Kakapo and Otanomomo soils are characterised by poor drainage and slow permeability with high organic matter content.

Farm Dairy Effluent Land Categories are identified in the RWP and are used to determine the risk of irrigating effluent onto different types of land. This is particularly relevant to Policy 42 in the RWP, which provides direction on risks associated with the discharge of dairy effluent to land. The FDE land categories within the effluent disposal area are Category A (Artificial drainage or coarse soil structure), Category B (Impeded drainage or low infiltration) and Category C (sloping land over 7 degrees).

The property is located within the Bedrock/Hill Country physiographic zone. The physiographic zones relate to the classification of land and risks to water quality based on factors including soil types, landscape classification, climate, topography and water chemistry. These zones have been established in Southland to provide a framework for establishing how contaminants move through the environment, and highlighting key contaminant movement risk pathways. These have been developed to better understand Southland's water and why it is better quality in some areas than others.

Physiographic Zone	Variant			
	No Variant	Overland Flow	Deep Drainage	Artificial Drainage
Bedrock/Hill Country	✓	✓	-	-

The Bedrock/Hill Country physiographic zone is generally land with bedrock or glacial till found near the surface, located below 800 m above sea level. There are no significant areas of groundwater. This zone mainly consists of rolling to steep land, which has high rainfall zone due to its elevation.

Contaminant loss to waterways is the main concern in this zone. Water quickly flows down-slope through wet soils and as overland flow to nearby streams following high or prolonged rainfall. In this zone nitrogen, phosphorus, sediment and microbes are all carried with water, particularly during late autumn and winter. The key pathway for contaminants when taking into account the properties of the physiographic zones is through overland flow. Because of the features of this the main risk for this site in regards to water quality is to surface water quality in the Upukerora River and the Whitestone River.

In the additional information provided by the Applicant on 27 July 2018, Dairy Green Limited has stated that there are no freshwater springs in the discharge area. This statement is inconsistent with what I observed during the site visit. During the discussion at the pre-hearing meeting on soils, Hans Vernooij (the farmer and director of White Waters Limited) agreed that there were freshwater seepages observed during winter months in the discharge area.

Surface Water

There are three unnamed tributaries of the Whitestone River running through the discharge area.

The property is predominantly located within the Whitestone River catchment (89%), with a small proportion in the Upukerora River catchment (11%). The Whitestone River flows into the Mararoa River, which is a tributary of the Waiau River. The Upukerora River flows to Lake Te Anau, which is considered a statutory acknowledgement area under schedule 58 of the Ngai Tahu Claims Settlement Act 1998. Lake Te Anau (Te Ana-au) has high cultural significance to local iwi.

This is discussed in the expert evidence of Dr Greg Ryder. I adopt his evidence, but the key points are:

- the lack of local monitoring data presents some difficulties in determining the effects of the activity on local and downstream surface water quality and ecology so a precautionary approach has been adopted; and
- the data that is available shows that most water quality parameters that are monitored are meeting the water quality numeric objectives over the last five years; and
- Water quality is very good at all three sites which have been monitored with the exception of nitrogen in the Whitestone River, which is deteriorating over time; and
- The Upukerora River is within the water quality criteria for MCI scores, although there is insufficient data for the Whitestone River to determine the current state of its benthic invertebrate community; and
- Brown and Rainbow trout, bullies, longfin eels and “Gollum” galaxias are common for the location with “Gollum” galaxias classified as nationally vulnerable.

Groundwater

The property is within the Te Anau Groundwater Management Zone under both the RWP and pSWLP. This zone is classed as a terrace unconfined aquifer in the plans. The groundwater in the area is assumed to predominantly be recharged from rainfall recharge and discharge to Lake Te Anau and the Waiau River.

- **Quantity**
Recharge to the Te Anau Groundwater Management Zone is predominantly from rainfall recharge.

Groundwater allocation is low in the Te Anau Groundwater Management Zone, with the zone having a preliminary allocation of 123,000,000 m³/year (RWP) and 118,250,000 m³/year (pSWLP) (Land Surface Recharge of 255,800,000 m³/year) under the RWP. Cumulative allocation from the groundwater zone, including this application is 3,501,614 m³/year (RWP) and 3,960,345 m³/year (pSWLP), about 3% (RWP) and 3.3% (pSWLP) of the preliminary allocation and 1% of the land surface recharge as assessed under the RWP.

- **Quality**
Groundwater quality is generally good in the Te Anau Groundwater Management Zone, although it does vary according to the source aquifer and location.

There is no recent groundwater data specific for this site in the ES groundwater nitrate monitoring database. The monitoring points available close to the site (within a 7.5 km radius of the dairy shed) predominantly reflect data NO₃-N between 0.34–1.38 mg/L. There is a point approximately 15 km south-east of the site which reflects NO₃-N of 6.3 mg/L. This highlights the generally low of groundwater nitrogen results in the area. See the map below for more information.

2.3 Regional Planning framework

Resource consents are required under the RELAP, the RWP and the pSWLP.

RELAP

- The discharge of calving shed effluent (not covered by Rule 50 of the RWP) is a **discretionary activity** under **Rule 5.4.6**.

RWP

- The discharge of dairy shed effluent to land is a **restricted discretionary activity** under Rule 50(d).
- The taking of groundwater is a **discretionary activity** under Rule 23(d)(ii).

Under the RWP the application is considered to be for a discretionary activity.

PSWLP

- The discharge of effluent to land is a **discretionary activity** under Rule 35(c).
- The taking of groundwater is a **permitted activity** under Rule 54(a).

Under the pSWLP the application is considered to be for a discretionary activity. Section 124-124C of the RMA do not apply as the application was lodged less than three months in advance of the existing consent expiring. Therefore, the discharge activity cannot comply with criteria (i) of Rule 35(b).

Overall, the application is considered to be a **discretionary** activity.

2.4 Notification and Submissions

The application was publically notified on 29 May 2018 when it was determined the effects of the proposed application were likely to be more than minor (s95A(8)(b)). A copy of the s95 report is appended to this application.

Four submissions were received with three in opposition and one neutral. These are included in the appendices, and are summarised as follows:

- **Department of Conservation – Opposed**
 - Opposed to the discharge permit only, with no objection to the proposed water permit.
 - Concerned that the application relies on good management practices to minimise the effects. However, no certainty is provided that the good management practices that are proposed are sufficient to ensure adverse effects are avoided, remedied or mitigated.
 - If a consent is granted, it should be for a short-term that aligns to FMU limit setting.
 - Restrict the discharge of contaminants to sensitive areas and/or when ground conditions are suitable.

- ***Fish and Game Southland – Opposed***

- Opposed to the discharge permit only with no objection to the proposed water permit.
- There are considerable Fish and Game values associated with the Whitestone and the Upukerora Rivers and Lake Te Anau in the Waiau catchment, including the water quality in the upper Whitestone River and upper Upukerora River, which is high and water clarity can be exceptionally high and both are characterised as a headwater fishery and provide important fish passage for brown and rainbow trout moving within the Waiau catchment.
- The Waiau catchment is a significant brown and rainbow trout fishery in terms of angler use, as identified in the survey data provided in the submission.
- Effects on the environment will be more than minor.
- The application is inconsistent with regional policies.
- Wants the discharge application declined in its entirety.

- ***Te Ao Marama Incorporated on behalf of Oraka-Aparima Runaka – Opposed***

- Opposed to the discharge permit only with no objection to the proposed water permit.
- Both the Upukerora and Whitestone Rivers have significant cultural value to Ngai Tahu, with three statutory acknowledgement areas within the wider location of this application, with effects from this activity considered on each of the three statutory acknowledgement areas.
- Concerned about the proposed mitigations for storing and discharging effluent.
- There are a number of freshwater springs within the discharge area.
- The receiving waters downstream of the dairy farm are natural state and have high cultural values.
- The effects will be more than minor.
- Wants the discharge application declined in its entirety.

- ***Public Health South – Neutral***

- Submission relates to the effluent discharge and storage facility, with no comment on the proposed water permit.
- Sustainable Development Goals (SDG's) created by the UN General Assembly with SDG 6 and SDG 15 relevant to this application.
- The effluent system is not fit for purpose and carries increased risk of microbial and nutrient contamination of groundwater and nearby surface water bodies.
- Contaminated water sources can lead to sickness including giardia, cryptosporidiosis, *E. coli* and salmonella.
- Without baseline data available it is difficult to assess the impact this activity has had on the water quality to date and there is uncertainty that this activity will not adversely impact the area.
- Want conditions requiring:
 - ◆ the effluent pond is upgraded;
 - ◆ a different discharge method is used that is a slower rate;
 - ◆ monitoring 6 m downstream of the site in both rivers and upstream of the site; and
 - ◆ groundwater monitoring from the on-site bore.

2.5 Section 99 pre-hearing meeting

A pre-hearing meeting for the application was held on Monday, 23 July 2018 and was chaired by Glen Cooper. His report, as per Section 99(5) is attached.

No clear points of agreement or disagreement were reached between the Applicant, submitters and Council. Instead the pre-hearing meeting focused on what information the Council and submitters felt they needed to inform their position. Most of this information was supplied on 27 July 2018, and on 30 July 2018.

3. Assessment of issues

Issues

There are significant issues with this application which are why my recommendation is that consent is refused. These issues, the policies and objectives that relate to them and the effects are discussed below.

The issues are that:

- the application seeks to discharge effluent without using good management practices, thus opposing the Council's policy position that good practices are used; and
- water quality will not be maintained or improved, where Council's policy is that water quality is either maintained or improved; and
- the site and downstream environment is a very sensitive receiving environment, making any adverse environmental effects particularly important.

3.1 Issue 1: Not using good management practices or best practice

Council's plans address how certain activities should be undertaken. In all of the relevant plans there are very clear expectations about how effluent from farms should be discharged to land, how effluent systems should be managed and the level of effects acceptable as a result of these activities. Both good management practice and best practice are relevant for this discussion, based on the policies in the relevant planning provisions. Good management practice is defined in the pSWLP, although best practice is not defined and a literal interpretation has been used relying on the guidance provided in Policy 17 note 2.

In the case of this application it is very clear, in my opinion, that the Applicant is not using good management practices or best practice as directed by the plans. The applicant also has a history of poor compliance. My conclusion that good management practices and best practice are not proposed to be used is supported by expert evidence provided by Ms Keri Johnston.

Buffer distances

As described in section 2.2, the primary contaminant pathway for the proposed effluent discharge area is overland flow. In this instance, maintaining buffer distances of 20 m between effluent irrigation areas and waterways is not sufficient and, in my opinion, will not lead to effects on water quality being avoided or mitigated. This is supported in the evidence from Dr Ryder and Ms Johnston. Whilst such setbacks may be sufficient on other sites, here additional risk factors apply.

These are the use of the tanker on sloping land, the presence of freshwater springs throughout the proposed discharge area and the sensitive nature of the Upukerora and Whitestone Rivers downstream. The location of the freshwater springs has not been mapped, so it is unlikely that a 20 metre buffer would be effectively implemented. Therefore, I conclude that this good management practice proposed is not a suitable measure to avoid or mitigate the effects of the discharge on water quality in the Upukerora and Whitestone Rivers.

Low rate and depth irrigation

In my view the good management practice of using low depth irrigation is insufficient to minimise the potential adverse effects on water quality in this case. Risks in this case are the soil types, proximity of springs, sloping land. The practice of using low depth but high rate irrigation is not good practice considering these risk factors, and will not minimise the potential adverse effects on water quality. I acknowledge that, if properly implemented, low depth and low rate irrigation is an appropriate method² for minimising the effects of effluent discharge to land. Indeed policy direction is to promote low rate irrigation, as well as low depth irrigation. I am not confident that the methods will be operated as proposed.

A performance rate test for the proposed slurry tanker has not been provided, despite this information being requested. The previous test from 2012/13 indicated that a speed of 10 km/hr will ensure that the application maximum depth of 5 mm per pass will be achieved, although this has not been confirmed and, due to the wear and tear of equipment over time, I am uncertain that this speed will achieve the depth applied for. This is supported by evidence from Ms Johnston.

In this case the Applicant is proposing to use high rate, but low depth irrigation through a slurry tanker as the primary discharge method, but will use a Larrall Smart Hydrant system during the shoulder season and when conditions are unsuitable for the slurry tanker. While amending the application to include a Larall Smart Hydrant system is an improvement to what was proposed in the original application, I am concerned that it will not adequately minimise the effects of the irrigation of effluent to land. This is because the slurry tanker is still proposed as the primary irrigation method, on rolling topography with a contaminant pathway identified as overland flow. The Larall Smart Hydrant system is not yet installed and will require an infrastructure upgrade before this is operational. When viewing this good management practice through the lens of the plan, it is my view that this will not sufficiently minimise the effects on water quality from the discharge of effluent to land.

Effluent storage

The third good management practice proposed by the Applicant is the use of deferred effluent storage. This allows effluent to be stores and irrigated only when soil moisture conditions are suitable for grass growth, so that nutrients are used by the plant and not lost through the soil profile to water, or via overland flow to waterways. This good management practice is essential for matching farm dairy effluent management to environmental risk, as directed by Policy 42 in the RWP. I hold serious concerns that there is not sufficient storage available on-site to meet good practice volumes.

The determination of what is sufficient storage (the minimum required for the site) is based on a Massey Pond calculation. The Massey Pond Calculator incorporates 30 years of rainfall data, soil moisture deficit data, and evapotranspiration for the region, and states the maximum storage

² Houlbrooke, D J, et al. "A review of literature on the land treatment of farm-dairy effluent in New Zealand and its impact on water quality." New Zealand Journal of Agricultural Research 47.4 (2004): 499-511.

required over the 30 year period to ensure adequate deferred storage for a farm. Our standard practice is to apply the 90% value in the Massey Pond Calculator, as this allows some flexibility into the model. Based on the final calculation provided the Applicant's consultant considers there is sufficient storage. I consider this is not the case, as it does not account for freshwater through overland flow to the pump sump.

Looking at the calculation Ms Johnston states that this system will require careful and precise management to ensure that effluent at the dairy shed does not overflow the sump system, but also to ensure that the decision is made to pump effluent to the storage tank at the most appropriate time. Further uncertainty comes from the fact that I have received different versions of the calculator.

Having insufficient storage increases the risk that irrigation can be deferred no longer and occurs onto saturated soils. Irrigation on saturated soils significantly increases the actual or potential effects on water quality by allowing for direct runoff to occur over the surface. This risk is particularly high on sloping sites such as this. Even if the storage volume were sufficient, the applicant has no contingency plan or emergency storage – they would be operating at the limit at all times.

There is also uncertainty regarding the current effluent storage tank, as no evidence has been provided with the application that this structure is suitable to continue to be used. The plans from a chartered professional engineer (from when the tank was originally installed) have been provided with the application. However, it is standard practice for either a drop test, or if this is not an option, alternative engineering evidence is provided with the application to support the ongoing use of this structure. This evidence has not been provided.

Operating with sufficient deferred storage available is a key factor in whether or not the proposed discharge to land is appropriate and effects can be avoided, remedied or mitigated as directed by Policies 6 and 17 of the pSWLP.

Discussion: What regional plan policies say about Good Management Practices

Council's plans are very clear about the expectation that effluent management systems operate with good management practices and effluent is discharged in line with good management practice. Good management practices are defined in the pSWLP as "include, but are not limited to, the practices set out in the various Good Management Practices factsheets available on the Southland Regional Council's webpage." The relevant factsheet for the site have been appended to this report. Policy 17 of the pSWLP goes further than good practice, and requires that best practice is used. Best practice is not defined in the plan, but guidance on what is 'best practice guidelines' is provided in the second note of Policy 17. Here, the second guide *A Farmer's Guide to Managing Farm Dairy Effluent – A Good Practice Guide for Land Application Systems*, 2015, is more relevant. This guide is attached to this report.

In my view the proposed effluent discharge system is not in line with good management practice or best practice guidelines.

Policy 6 of the pSWLP is clear that, when assessing the actual and potential effects of the activities which may affect water quality, it is important to have particular regard for how contaminants are transported and that good management practices are implemented. Policy 6 also requires the implementation of good management practices. The Applicant is not proposing to do this.

Policy 17 of the pSWLP is also a key provision relating to Good Management Practice. Part 2 of this policy provides direction that agricultural effluent systems and discharges should be appropriately managed. Part 2.(a) of the policy centres on the infrastructure and focuses on designing, constructing and locating systems. For this application, the proposed effluent system will not be located in an appropriate location (noting that much of the system is already present at the site). The effluent storage tanks are 1.3 km uphill from the dairy shed, requiring effluent to be manually pumped every day. This provides limited contingency storage at the dairy shed with the capacity of the yard sump and pump sump combined equating to one day of storage. Should there be a system malfunction, either with the pumps, effluent lines or sumps the current effluent system would struggle to cope, and would likely overflow. The Applicant has stated that the location of the tank is beneficial to the application as the tank is closer to the effluent discharge area and is internal to the property limiting the effects of odour beyond the boundary. My concern with the system is not the location of the tank, but the distance between the shed and the tank and the lack of contingency if issues arise. It is my view that the current infrastructure for the discharge of effluent is not designed or located in accordance with best practice.

With regards to the second point for Policy 17(2), the proposed discharge of effluent is inconsistent with the best practice guidelines. The second note to this policy provides guidance on what is intended with the term “best practice guidelines”. Here, the second guide, is more relevant. The relevant guide (*A Farmer’s Guide to Managing Farm Dairy Effluent – A Good Practice Guide for Land Application Systems*, 2015) identifies effluent irrigation systems that are appropriate for different scenarios. According to this guide a farm that has poorly drained or pugged soils or soils with artificial drainage, will use land with a slope greater than 7 degrees, is in a high rainfall area and in a nutrient sensitive catchment, a low rate application system is best. All these characteristics apply to this farm. The inclusion of the Larall Smart Hydrant system is a low rate application system, but the (high rate, high depth) slurry tanker is still proposed as a primary irrigation method. It is my view that the use of the slurry tanker as a primary irrigation method (even in conjunction with a low rate system) is inconsistent with this best practice guideline. This position is supported by the evidence of Ms Johnston.

With regards to the third and fourth points in Policy 17(2), the current effluent system proposed is not sufficiently mitigated to avoid any surface run-off or overland flow, and the discharge of untreated effluent to water. The use of deferred storage would be central to this point and based on the evidence of Ms Johnston, it is my understanding that there is insufficient deferred storage on site. Therefore, as the discharge of effluent cannot be sufficiently deferred to an appropriate time, the Applicant will likely need to irrigate effluent when soil moisture conditions are at field saturation, or deliberately allow the effluent storage tank to overflow. Either option is likely to result in surface run-off or overland flow to nearby waterways allowing untreated effluent to enter water. The term “avoid” in Policy 17(2) provides clear planning direction on activities and effects that are unacceptable, and I consider that the proposed application will result in these effects. Therefore, I consider the application to be contrary to this direction.

Overall I do not believe that the agricultural effluent system is consistent with best practice guidelines and the environmental effects will be significant and cannot be avoided. Therefore, I consider that the direction in the application will result in greater effects than provided for in this policy. Consequently, the application is contrary to Policy 17 in the pSWLP.

The key policies in the RWP are 31A and 42. These policies relate to matching the discharge of contaminants to land with the environmental risks. Policy 31A specifically looks at the risks associated with discharging onto sloping land and the climate for the discharge area. For this location, the site is considered a high rainfall site and there is a proportion of the discharge area on sloping land (over 7 degrees). When looking at the risks identified in this policy I do not consider that

level of management proposed in the application is sufficient to match the risks of the discharge of effluent in this sensitive location. It is my interpretation that the management of the discharge does not meet the environmental risks posed and that the application is contrary to this policy.

Policy 42 determines land categories and identifies different criteria to match discharge to effects based on these categories. In this application, there is a component of the discharge area over 7 degrees. The plan indicates that discharge should only occur at an instantaneous application rate to match the soil infiltration rate. This means that the policy is directing low rate effluent on land over 7 degrees. Policy 42 indicates that adverse effects on water quality need to be avoided (although this was developed prior to the King Salmon decision). It is my view that the application, with the mitigations proposed, will not avoid adverse effluents on water quality, as supported by the evidence by Ms Johnston and Dr Ryder. Therefore, in my opinion, the application is contrary to this policy in the RWP.

Policy 3.5.1(8) of Te Tangi a Taurira outlines key good management practices for the discharge of effluent to land including the use of low rate irrigation and the use of sufficient deferred storage of effluent. The good management practices identified in this policy are inconsistent with what is proposed for the application (see above for more detail). I consider the application to be contrary to Policy 3.5.1(8). Policy 3.5.1(10) also advocates for the re-evaluation of existing discharge to land consents to develop better systems where needed. In this case, the discharge of effluent to land is no longer part of the existing environment, but the intent of this policy is to require that an activity is at current standard. I do not consider that the proposed discharge of effluent to land is at current standard.

Compliance history

The Applicant has a poor compliance history for the previous discharge permit AUTH-301177. For the period that the consent was valid, White Waters received 16 compliance inspections. On 12 occasions White Waters was non-compliant with the conditions of their consent, and on 4 occasions they were graded fully compliant. Enforcement action was taken in 2016 due to an incident involving the contamination of a tributary of the Whitestone River with effluent (a green stream). As a result, White Waters Limited was convicted and charged for a breach of Section 15(1)(b) of the RMA.

Conclusion on Good Management Practices

The Applicant has proposed a number of good management practices and mitigation measures to minimise the effects of the discharge of effluent to land, with the key good management practices being the use of buffer distances to waterways, low rate and depth irrigation and deferred effluent storage. Due to the sloping land at the site, the irrigation methods proposed and the presence of freshwater springs in the discharge area I do not believe that the proposed buffer distances are sufficient and would not be effectively implemented to meet this good management practice. The use of low rate and low depth irrigation is important due to the soil types, contaminant flow pathways, topography and proximity to springs, tile drains and waterways. The proposed primary irrigation method of the slurry tanker is high rate, but low depth. The inclusion of the Larall Smart Hydrant system as an alternative primary irrigation method is better than what was proposed originally but is not sufficient to alleviate my concern. The Larall Smart Hydrant system has not yet been installed, and will require an infrastructure upgrade to be operational. Regardless of the Larall Smart Hydrant system, the application is clear that it is proposing to discharge effluent via high rate irrigation system as a primary irrigation method on heavy soils and sloping land. The use of deferred storage is essential. Multiple calculations have been provided to confirm that there is sufficient storage on site and these have been reviewed by Ms Johnston. With the final calculation provided, there may be sufficient storage available although this does not take freshwater runoff into the

pump sump into account. There is also very limited storage available at the dairy shed as emergency or contingency storage. Therefore, I conclude that all three good management practices identified above have not been met.

Policy 6 and Policy 17 in the pSWLP are very clear that good management practice, or best practice is implemented. The RWP requires that environmental management practices are matched to the environmental risks for the site. Te Tangi a Taurira outlines key good management practices required. It is my view that as good management practices are not sufficiently implemented, the application is contrary to these key policies. This is supported by previous compliance history which highlights past challenges with operating this proposed farm system. Therefore, it is my view that the application is contrary to the relevant policies identified above and consent should be refused.

3.2 Issue 2: Water quality will not be maintained or improved

A key issue with any the discharge of effluent to land is the potential adverse effect on water quality. In the case of this application I do not consider that water quality will be either maintained or improved, primarily as a result of the method and location of the proposed discharge: the absence of good management practices, poor management and the sensitivity of the receiving environment. Despite this, council's policy is that water quality shall be maintained or improved.

What is the environmental effect?

The risk for the site when it comes to the discharge of effluent to land is the contamination of surface water through overland flow, as demonstrated through the physiographic zones. This may result in water quality degrading from its high standard (i.e. not being maintained). Dr Ryder has stated in point 9.7 of his evidence that "most NZ freshwater fish species are relatively tolerant of some mild increase in nutrient concentrations, however even mild concentrations of N and P can change the habitat of small waterways through encouraging nuisance algae and plant growths. Further, there is evidence that elevated nitrate levels can be toxic to both fish and benthic invertebrates". In this case the environment that will be affected is the Whitestone River catchment and the Upukerora River catchment. The effects resulting from not maintaining water quality will be increased algae blooms and plant growth, degradation of aquatic habitat, and adverse effects on aquatic life and cultural values.

Will the effects be avoided, remedied or mitigated?

The effects mentioned above will not be avoided, remedied or mitigated. Avoid means that an effect will not happen and there is no proposal to remedy the effects. The only way to avoid the effect is for the consent to be refused (as is recommended). The effects will not be mitigated as the Applicant is not proposing adequate mitigation measures and those proposed will not be effective (as identified in Section 3.1 above).

Due to the sensitivity of the site as outlined in the evidence from Dr Ryder, it is my view that even if these good management practices proposed can be implemented at all times, the practices proposed will not be sufficient to avoid or mitigate effects on water quality. Previous compliance history has also provided doubt that these good management practices will be implemented.

What regional plans tell us about effects

Council's plans require water quality to be maintained or improved and the discharge to land will not result in this occurring. Because of the sensitivity of the receiving environment with a high level of

water quality (in parts Natural State) there is a very real risk that the discharge could lead to effects on instream life and the cultural values associated with the water. To support my conclusion expert evidence has been provided by Dr Greg Ryder. This is not repeated here and it is adopted in full.

Clear direction is provided in all of Council plans that water quality is to be maintained or improved. The second point in Policy 6 of the pSWLP about the physiographic zones provides direction that when consent applications are being assessed that particular regard is had to adverse effects on water quality. I think the application should be declined and is contrary to this policy because the proposed good management practices are not sufficient to avoid or mitigate adverse effects on water quality, as outlined by Dr Ryder and Ms Johnston. It is my interpretation that the adverse effects on water have not been avoided where practicable, remedied or mitigated as required by Policy 4.2.3 of the RELAP and the application is contrary to policies about water quality.

Part one of Policy 17 of the pSWLP is very clear that significant adverse effects on water quality from the operation and discharge of effluent from effluent management systems should be avoided. Avoid is a high test and means that an effect should not occur. I consider that any adverse effects of the activity on water quality will be significant due to the sensitive location and that adequate measures have not been proposed to ensure that adverse effects of the discharge and system will not be significant. Therefore, as the word “avoid” is used in the policy the effects should not be allowed to occur.

Policy 16(2) in the pSWLP relates to all farming activities, including the proposed discharge of effluent to land and requires collected nutrients to be managed with regards to contaminant loss and management of critical source areas. Evidence from Ms Johnston and Dr Ryder highlight the uncertainty in the application regarding how the collected nutrients will be managed, and I am concerned that this will result in adverse effects on water quality.

Key direction about acceptability, or otherwise of the effect of the discharge on water quality stems from the RWP. Objective 4 provides guidance on maintaining and improving water quality and sets a target of improving water quality by 10% by 2020 through encouraging best practice. As identified in Section 3.1, I do not consider that the activity will achieve best practice for the discharge of effluent to land and based on the evidence provided by Dr Ryder, I consider that the discharge will not contribute to improving water quality by 10%.

Further objectives policies which discuss the effects of the discharge and “acceptable” effects in the receiving environment are:

- Objective 8 of the pSWLP focuses on maintaining water quality to ensure that Drinking Water Standards for New Zealand are met, or where not met that water quality is improved. Dr Ryder has provided evidence that water quality in the regional is generally very good, with the exception of the Whitestone River water quality monitoring site which is showing a declining trend for nitrogen over time.
- Policies 15A and 15B of the PSWLP are more applicable to a discharge to surface water as they refer to zones of reasonable mixing. While water quality is very good in the surrounding area, the nitrogen levels observed in the Whitestone River water quality monitoring site show a declining trend. It is my view that the discharge of effluent to land that is not sufficiently mitigated (as identified in section 3.1 above), will not improve water quality in the Whitestone River as required by Policy 15B(2).

- A *Farm Environmental Management Plan* has been supplied with the application, although an updated copy related to the amended application was supplied with the additional information on 27 July 2018. The management of sediment as required by Policy 16(2)(b) is likely outside the scope of the discharge of effluent to land, and relates to the use of land for dairy farming which is permitted for this application.

Conclusion

In my view, applying the very clear objectives of the RWP, pSWLP and RELAP cannot lead to a consent being granted. Rather, the council's policy position is to oppose this application. Granting the consent allowing the activity would not lead to water quality being maintained or improved. However, the maintenance or improvement in water quality is required. This conclusion relates directly to the absence of good management practices, poor management and the sensitivity of the receiving environment.

3.3 Issue 3: Sensitive receiving environment with significant cultural values

The discharge area and the wider catchment are very significant areas. This is recognised in the Statutory Acknowledgements for Lake Te Anau and the Waiau River, in Schedules 58 and 69 of the Ngai Tahu Claims Settlement Act 1998. This is supported by the submission received from local iwi.

In my view, the effects of the discharge of effluent to land on water quality will affect the cultural values of the site and its surroundings. In this case, it is the water and land covered by the various Statutory Acknowledgement Areas that will be affected. I do not think that the effects will be avoided, remedied or mitigated as inadequate and ineffective mitigation measures have been proposed and the only way to avoid the effect on the cultural values is to avoid the discharge. Objectives and policies in Te Tangi a Tauira are very clear that effects on cultural values and on water (which holds cultural value) must be avoided. Therefore, granting the consents will not achieve the objective of this plan in protecting cultural values.

Objective 4 in the pSWLP provides direction that Tangata whenua values and interests are identified and reflected in the management of freshwater and associated ecosystems. Te Tangi a Tauira and the views of Te Runanga o Ngai Tahu and Te Ao Marama Inc (representatives of the four rūnanga) have been taken into account in assessing the application. Te Ao Marama Inc and Te Runanga o Ngai Tahu were both served copies of the application during the notification process of the application and have submitted in opposition of the application. Papatipu rūnanga has had the opportunity to effectively undertake its kaitiaki responsibilities in freshwater and land management. To give effect to Objective 4, weight needs to be put on the submission from Oraka-Aparima Runaka as this is the format for tangata whenua to have their values and interests reflected in the management of the resources relevant to this application. For this application, Oraka-Aparima Runaka has submitted that the application should be declined in its entirety and has provided reasons to support this position.

Policy 2 of the pSWLP identifies the indicators of health, based on the list on page 150 of Te Tangi a Tauira, and the main ones of relevance to the application are water quality and whether water is safe to drink. The effects of the activity on water quality are addressed above in Section 3.2 and is supported by evidence from Ms Johnston and Dr Ryder. Therefore, based on this evidence, it is my view that the application will likely affect water quality and is contrary to Policy 2 of the PSWLP. This is supported by the submission from local iwi, which supports the position that the activity is likely to affect iwi values for the area.

Taonga species have been identified in the Whitestone River just upstream from the farm. The direction of the pSWLP in Policy 3 is to manage activities that adversely affect taonga species. This is supported by Objective 15 in the pSWLP, which directs that taonga species and related habitats are recognised and provided for. The proposed activity is likely to affect water quality and subsequently the taonga species, as identified by the evidence of Dr Ryder, with no mitigations proposed to manage taonga species or ensure that adverse effects on taonga species are reduced. While the plan only provides direction to manage, rather than avoid, remedy or mitigate adverse effects on taonga species, I do not believe that the Applicant has provided sufficient management options with regards to adverse effects on taonga species. When taking the direction provided in the submission from local iwi into account, it is my view that the effects of the proposed discharge of effluent on water quality and subsequently on taonga species will be greater than what is provided for in the plan. Therefore, the proposed discharge is contrary to Policy 3 and Objective 15 in the pSWLP.

Lake Te Anau is also considered Natural State Waters in the plans (Appendix E in pSWLP and Appendix G in RWP) with the direction in the plan that Natural State Waters shall not be altered. Water quality is generally very good in the waterways surrounding the site and is characterised as a headwater fishery (see evidence from Dr Ryder). The waterways are also home to Brown and Rainbow trout, bullies, longfin eels and Gollum galaxias. Consequently, any adverse effects are important, could have significant consequences and it is critical that water quality is maintained and or improved.

Policy 14 of the pSWLP provides a clear preference for discharges to land, rather than water. As this application is for a discharge to land and not a direct discharge to water the application is consistent with this part of Policy 14. The second part of Policy 14 focuses on the adverse effects on cultural values associated with a discharge to water. Given the uncertainties associated with the proposed Good Management Practices and as the proposed application is insufficiently mitigated, it is likely that the discharge will be to water either through overland flow or preferential flow through tile drains. Oraka-Aparima Runaka has submitted in opposition to this application due to the high cultural values for the area and has asked for the application to be declined in its entirety. Policy 14 directs for the decision makers to have particular regard to these adverse effects identified by Oraka-Aparima Runaka.

Policy 3.3.12 (5) in Te Tangi a Tauira is important as it directs decision makers to protect, and where necessary enhance, the mauri or life supporting capacity of Lake Te Anau. The submission received from Oraka-Aparima Runaka indicates that the mauri of Lake Te Anau is high and that it is unlikely to be protected by this proposed discharge of effluent to land. Therefore, the application is contrary to this policy.

4. Statutory Considerations

4.1 Outline

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:

- assessment of the actual and potential effect of the activities on the environment;
- relevant provisions of the RELAP, RWP and pSWLP;
- relevant provisions of the National Environmental Standards; and
- Part 2 of the RMA.

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

4.2 Actual and potential effects

Effects that must be disregarded (Section 104(2))

No effects of the discharge of effluent to land or water take have been disregarded. The ongoing use of land for dairy farming is permitted and is outside the scope of this application. Therefore, no effects have been considered regarding the wider effects of dairy farming, only the discharge of effluent to land and the take and use of groundwater.

Section 104(2) of the RMA states:

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

This concept outlined in Section 104(2) is known as the permitted baseline. With regard to the water take and the discharge of effluent to land, any permitted baseline would only relate to a fraction of the effect of the water take or the discharge. Applying a permitted baseline for the water take and effluent discharge is unlikely to alter the assessment of effects in any way due to the fraction of effects that would be permitted.

Summary of effects

The policies provide a lens for how the effects of the activity are viewed, with the relevant policies providing clear direction to decision makers on the level of effects considered acceptable by the planning provisions. Due to the interlinking effects and policies for this application, the main assessment of effects for this application have been addressed in Issues section above (Section 3).

Temporary and Cumulative Effects

As the activities proposed are to be ongoing, any resulting effects are not likely to be temporary. The RMA defines a cumulative effect as an effect that arises over time or in combination with other effects. For this application this means that the main concern is on the cumulative effects on water quality. The discharge of effluent to land without appropriate mitigation measures (as outlined above in Section 3.1) is likely to result in cumulative effects on water quality in the Whitestone and Upukerora Rivers. Council's plans, specifically Objective 1, Objective 6, Objective 13B and Policy 39A in the pSWLP, are very clear that an integrated approach is taken and that these effects must be avoided, remedied or mitigated. Granting the consent will not result in these objectives being met.

Objective 1 of the PSWLP requires that an integrated approach to natural resources is undertaken. This objective directs for a holistic approach to be adopted, rather than focusing on small components in isolation. This objective identifies the importance of recognising the connectivity of the activity in the wider environment.

Policy 39A of the PSWLP directs that integrated management between freshwater, land and associated ecosystems are considered when addressing cumulative effects. 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. Cumulative effects are likely to result from the ongoing discharge of effluent, which is insufficiently mitigated as identified in Section 3 on effects on water quality. This is supported by the evidence from Ms Johnston and Dr Ryder.

Dr Ryder addresses in his evidence (point 9.4) that cumulative effects have been a challenge to determine due to diffuse and non-point discharges associated with dairy farming. However, it is essential that they are considered as the proposed activity is for a daily discharge (when conditions are suitable) which will affect water quality. When looking at the wider picture, it is unlikely that a daily discharge of effluent to land that is insufficiently mitigated (as this one is) would achieve the direction of this policy.

The magnitude of environmental effects and risks of the proposal have been considered, as directed by Policy 41 of the pSWLP. The discharge is not appropriately mitigated as outlined in Section 3.1 above and this will likely increase the risks of the proposed effluent discharge to land. This is supported by the evidence from Ms Johnston and Dr Ryder. Whilst I am not recommending consent conditions or any monitoring, the submission received from Public Health South outlines some monitoring for the proposed discharge of effluent to land. The previous permit was granted for a short-term with numerous monitoring requirements, although this has not resulted in data to inform the current application due to non-compliance and limitations with the monitoring programmes. Therefore, it is my view that the risks of adverse environmental effects occurring are high and the magnitude of these effects could be significant on water quality.

Other effect not in contention

Odour

As long as the effluent is applied in accordance with the specified application rates and depths, and the buffers specified by recommended consent conditions are maintained, then there should be little risk of adverse effects from odour and spray drift on surrounding land owners and occupiers.

Water quantity

The rate of abstraction is less than 2 litres per second. The Applicant has freshwater storage tanks for stock water and shed washdown to ensure this abstraction rate can be met. At this rate of abstraction stream depletion effects do not need to be considered under the policies of the Regional Water Plan, and due to the proximity to the nearest surface waterway, effects on stream depletion are unlikely. The abstraction is also unlikely to cause any significant effects on neighbours' bore water supplies.

The Applicant is taking a reasonable amount of water for dairy activities (92 litres per cow per day), and is consistent with the recommended volume for dairy shed washdown and stock drinking water.

The groundwater zone has a preliminary allocation of 123,000,000 m³/year (RWP) and 118,250,000 m³/year (pSWLP). Cumulative allocation from the groundwater zone, including this application is approximately 1% (RWP) of the mean annual land surface recharge. The Applicant will require 40 m³ per day during the milking season. This equates to 21,000 m³ per year.

No adverse environmental effects are anticipated as a result of the taking of water as proposed. Recommended conditions of consent will require that the abstraction of water is metered and the results reported to Council.

The groundwater abstraction and use is a medium scale activity, in an aquifer that is well within allocation limits and at a rate that is reasonable for the intended use. Therefore it is consistent with Policies B7, 21, 28, 29, 30 and 31 of the RWP.

The principles of non-derogation applies to resource consents, where a consent cannot be granted where it would have the effect of significantly derogating from an existing consent. This is relevant for the application as the water take proposed is upstream from the existing Meridian Energy consented water takes. The volume proposed in the application is consistent with what was previously authorised from this site, and Meridian Energy had the opportunity to provide a submission on the application relating to this issue, but chose not to exercise this right. Therefore, I do not believe that granting the water permit would detract from the existing water take consents held by Meridian Energy downstream from the site. Therefore, derogation is not considered further in this report.

Effects Conclusion

The good management practices include in the application to discharge effluent to land are low depth effluent discharge, deferred effluent irrigation storage and observing appropriate buffer distances from waterways. These measures do not extend beyond current accepted practice and in fact are the starting point for other sites and no effort has been made to extend beyond what is common place. To me, they do not recognise the sensitivity of the receiving environment, do not provide certainty and will not result in the effects being avoided, remedied or mitigated. This is supported by the evidence of Ms Johnston.

The primary effects identified are to water quality, soil health and odour. However, the receiving environment is so sensitive that any effect will be significant.

I hold no concerns with regards to the abstraction and use of groundwater in this location. The proposed volume is in line with best practice volumes, represents an efficient use of water, the take will be metered, and the taking of the water should not result in the over allocation of the

waterbody. Mitigations proposed by the Applicant should ensure that all potential adverse effects of the abstraction are appropriately avoided, remedied or mitigated.

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

Planning framework

Council is currently operating under four regional plans, which are relevant for this application – the pSWLP, the RWP, RELAP and Te Tangi a Taurira. The pSWLP was notified by the Consent Authority on 3 June 2016 and the decision version was released 4 April 2018. 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 provisions of all relevant plans have been assessed in the issues and effects section. These policies are listed in full in Appendix 1.

The relevant operative plan is the Regional Water Plan and the relevant proposed plan is the decisions version of the proposed Southland Water and Land Plan (notified on 4 April 2018). On and from that date, the pSWLP is amended in accordance with the Council's decision (see clause 10(5) of Schedule 1 of the RMA). This means that on 4 April 2018, the notified version of the pSWLP is replaced by the decisions version of the pSWLP. Accordingly, the decisions version of the pSWLP is the relevant document which must be considered under Section 104(1)(b).

In my assessment greater weight will be placed on the pSWLP. This is because these policies and rules are intended to give effect to higher order documents including the NPSFM 2014, these policies represent a clear and significant shift in Council policy and the pSWLP introduces more coherent objectives and policies relating to dairy farming activities. In taking this stance on the pSWLP, I have considered the arguments of injustice, timing, legitimacy, consistency and precedence.³

Policy Summary

The significance of effects of an activity is determined by examining the effects through the lens of our policy documents. The key objectives and policies from Council's regional plans which relate to the potential adverse effects of the proposed discharge are detailed below. To me, the application turns on the fact that the discharge is contrary to Policies 6 and Policy 17 in the pSWLP and 31A and Policy 42 in the RWP. These policies provide clear direction on water quality and effluent management systems. These policies have been included Section three and no further assessment has been included here.

The activities have been considered against all relevant provisions of the RWP and the pSWLP. The key policies from the RWP related to avoiding adverse effects on water quality, and soil health and water quantity. It is considered that the discharge permit is contrary with these provisions, although the water permit is not contrary with the water quantity provisions. The key policies in the pSWLP related to the physiographic zones which the site is located in and directions around maintaining and improving water quality. It is considered that the activities are contrary with these provisions.

³ *Mapara Valley Preservation Society Inc v Taupo District Council [2007] Environment Court Decision A083/07 (Paragraph 51) and Keystone Ridge Ltd v Auckland City Council [2001] High Court Decision AP24/01 (Paragraph 30)*

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

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.

The Southland District Council takes water from the Upukerora River for between 501–5,000 people for the Te Anau municipal supply approximately 9.5 km downstream from the site.

Any potential effects on the water supply are likely to be negligible. The Southland District Council has not provided a submission on the application and the discharge is not likely to introduce or increase the concentrations of contaminants at the drinking water abstraction point that would cause a breach of the standards as identified in the evidence of Dr Ryder. Public Health South has provided a neutral submission on the application, recommending increased monitoring is undertaken to ensure human health effects are minimised.

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.

As the proposed take is less than 5 l/s then the regulations do not apply. However, metering will be required as a condition of consent to demonstrate compliance with the consent.

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

Te Tangi a Tauira is the Iwi Management Plan for Southland. This has been assessed in the issue section of the report.

4.6 Section 105 matters relevant to discharge or coastal permits

Section 105 matters need to be considered as the application is for a discharge that would contravene Section 15. Under Section 105, the consent authority must have regard to:

- (a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects;
- (b) the Applicant's reasons for the proposed choice; and
- (c) any possible alternative methods of discharge, including discharge into any other receiving environment.

The nature of the discharge is dairy shed effluent, calving shed effluent and some wash down water. In 2000, a literature review⁴ established the mean chemical concentration in farm dairy effluent of

⁴ Longhurst, R. D., A. H. C. Roberts, and M. B. O'Connor. "Farm dairy effluent: a review of published data on chemical and physical characteristics in New Zealand." *New Zealand Journal of Agricultural Research* 43.1 (2000): 7-14.

nitrogen (400 mg l^{-1}), phosphorus (70 mg l^{-1}) and potassium (370 mg l^{-1}). The effluent also contains other nutrients, such as phosphorus, and gut organisms. Effluent from feed pads is typically stronger in concentration than the dairy shed effluent. This is due to the absence of wash down water to dilute the effluent.

When applied to soils in an appropriate manner the effluent can act as a nutrient. Section 3.3 of this report identifies the sensitive nature of the environment and this is supported by evidence from Dr Ryder.

The Applicant has identified alternatives in Section 1.3 of the application. Possible alternatives considered have been the discharge of effluent to water, rather than land or the removal of land in the Upukerora River catchment. The Applicant has concluded that the discharge to water is inconsistent with Council policy and would likely have significant adverse effects. The decision to keep the Upukerora River catchment area in the discharge area was made to allow greater flexibility for the discharge of effluent. No alternative discharge methodology was identified in the application.

4.7 Section 107 restriction on grant of certain discharge permits

The potential for the effects listed under Section 107(1) of the Resource Management Act are not discussed in the application. Section 107(1) states that a discharge permit should not be approved if, after reasonable mixing, the contaminant is likely to give rise to the following adverse effects:

- (a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or
- (b) any conspicuous change in the colour or visual clarity; or
- (c) any emission of objectionable odour; or
- (d) the rendering of fresh water unsuitable for consumption by farm animals; or
- (e) any significant adverse effects on aquatic life.

Dr Ryder has provided evidence on the effects of the proposed discharge on water quality. There is uncertainty with regards to the effects due to the limited mitigation measures proposed as assessed in Section 3 above, and I am not satisfied that the discharge will not give rise to the effects identified above. The main concern would be on the effects on aquatic life and Dr Ryder has identified that while most New Zealand freshwater fish species are relatively tolerant of some mild increase in nutrient concentrations, even mild concentrations of N and P can change the habitat of small waterways through encouraging nuisance algae and plant growths. Further, there is evidence that elevated nitrate levels can be toxic to both fish and benthic invertebrates (point 9.7 of attached evidence).

Compliance history is one component that we consider among a number of factors, although it is relevant for looking at s107 and previous effects identified under AUTH-301177. For the previous permit the Applicant has had a poor compliance history, with enforcement action taken in 2016 due to an incident involving the contamination of a tributary of the Whitestone River with effluent (a green stream). As a result, White Waters Limited was convicted and charged for a breach of Section 15(1)(b) of the RMA. While the consent applied for does not include the direct discharge of effluent to water, the previous compliance history indicates that the effluent system is not up to a standard to sufficiently avoid the effects identified in s107. I am not confident that the application will not give rise to the effects outlined in s107 and consequently recommend that the application should be declined.

4.8 Part 2 of the Resource Management Act 1991

Recent case law from the Environment and High Courts provides an interpretation that when making a recommendation and decision on a consent application that it is the planning documents prepared by a local authority under the RMA which are the basis for decision making⁵. If these planning documents give effect to the Act, are clear in their intent and there are no gaps in their content then there is no need to reach an overall broad judgment approach under Part 2 directly⁶. With regards to the proposed activities, the existing planning provisions in the RWP and pSWLP are legally robust and are considered to adequately address the proposed activities and provide reasonable certainty. Therefore, no further assessment against Part 2 of the Resource Management Act, 1991 is necessary.

To provide completeness for this report, it is my view that the application is inconsistent with the RMA. My concerns with regards to Part 2 relate to s6(e), due to the submission received from local iwi in opposition based on the high importance of the area on cultural values. I also consider the application to be contrary to s7(f), as the assessment in Section 3.2 concludes that the proposed discharge is likely to result in adverse effects on water quality.

5. Recommendations

5.1 Whether to grant

The activities applied for have been considered together, and as such the highest consent test applies. The application is therefore 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.

I recommend that the application for both consents is declined. This is because:

- the effects of the discharge on water quality will be greater than what is provided for in the plans; and
- the discharge is contrary to policies in the Southland Water and Land Plan, Regional Water Plan, Regional Effluent Land Application Plan and Te Tangi a Tauria. In particular policies on agricultural effluent management and water quality.

Within the above the main issues are concerns about whether or not there is sufficient effluent storage, the proposed methods of effluent irrigation, the sensitivity of the receiving environment and certainty around the proposed mitigation measures.

I hold no concerns about the abstraction of water and as such my report focuses largely on the discharge to land. However, because the water take and discharge are linked I am also recommending that this consent be declined.

⁵ Southland Fish and Game New Zealand vs Southland Regional Council and Southland District Council EC 2016

⁶ Southland Fish and Game New Zealand vs Southland Regional Council and Southland District Council EC 2016 (paragraph 21)

Subject to new or contrary evidence being presented at the hearing I recommend under Section 104B of the RMA that consent is **refused**. This is for the reasons outlined in my report.



Emily Allan
Consents Officer

RECOMMENDATIONS IN COUNCIL REPORTS ARE NOT TO BE CONSTRUED
AS COUNCIL POLICY UNLESS ADOPTED BY COUNCIL