



MEMO

To: NZ Ski Limited
Cc: Mitchell Daysh Limited
From: Simon Bloomberg (e3Scientific)
Date: 27/8/2026
Subject: Covering Memo - Rastus Burn Wastewater Impact Assessment – ORC
Reviewer Comments Response – Updated following 11th August Meeting.

The Rastus Burn Wastewater Discharge Impact Assessment (e3Scientific, 2026a) forms part of the NZSki Remarkables Upgrade and Doolans Expansion fast track application. The technical reports which support the application were provided to ORC in May 2026 to allow the ORC to provide any feedback on the application prior to the submission of the application for assessment under the fast track.

The Wastewater Impact Assessment was reviewed by SLR and TELNZ, who have provided ORC with technical peer review reports. These peer review reports (dated 26 May 2026 and 3 June 2026) were then provided to NZSki and e3Scientific. NZSki then issued a scope of works to e3scientific to review the ORC feedback reports, make any changes to the Wastewater Impact Assessment, and provide a cover letter setting out responses to the ORC feedback reports. The updated versions were sent back to the ORC for further comments, which were discussed over two meetings to identify any remaining issues, substantive or otherwise. The wastewater discharge impact assessment has been updated following these meetings and seeks to address the points raised and recorded in the minutes (Mitchell Daysh, 11 August 2026).

This covering memo addresses the specific points of concern, and identifies the changes made to the Wastewater Impact Assessment and provides further supporting responses if required. The previous comment responses have been updated to be consistent with current understanding.

The following reports were reviewed and are addressed in this covering memo:

- "NZSki Remarkables Fast-track approvals application: Pre-lodgement review of second tranche of technical documents", Torlesse Environmental Ltd, Dated 26 May 2026
- "RE: RM26.075 NZ Ski Ltd (FTA) Doolans Creek Water Take Technical Peer Review Wastewater Treatment Plant and Discharge", SLR Consulting New Zealand, Dated 3 June 2026
- Minutes of meeting: Wastewater Technical Meeting, 11 August 2026.

1 Torlesse Environmental Comments

TELNZ Q1a	The report does not include several assessment approaches that are commonly applied in wastewater discharge water quality assessments, such as mass-balance analyses (beyond those used to calculate dilution in Section 4.4) and statistical analysis of receiving environment water quality data. In Particular: a) Wilcoxon signed-rank tests could be used to compare upstream and downstream water quality conditions.
e3s Response to Q1a	In response to 1a, an additional section "Further Statistical Analysis" and an appendix with further information has been included in the report. See Section 4.3.5 and Appendix A.
TELNZ Q1b	b) The dilution ratios provided in Section 4.4, when considered alongside the discharge quality data in Table 8, suggest that the downstream monitoring programme may not have captured the full range of potential discharge effects at all times. For example, during winter low-flow conditions, ammonia concentrations could theoretically exceed 10 mg/L under some scenarios. This would benefit from further consideration, ideally through inclusion of predicted downstream ammonia concentrations in Table 8. In particular, it would be useful to estimate potential peak on-season and off-season instream concentrations using the dilution ratios presented in Figure 20 and the measured ammonia concentrations in Table 8 (i.e. on-season = 153 mg/L with a dilution ratio of 172:1; off-season = 8.23 mg/L with a dilution ratio of 21:1). This would provide a clearer indication of the potential effects that could occur under the proposed consent conditions, rather than relying solely on observations from the existing consent regime

e3s Response to Q1b	<p>The compliance monitoring has collected monthly samples from the Rastus Burn over 10 years; at no point has the concentration of ammoniacal nitrogen in the Rastus Burn exceeded the toxicity default guideline value except when raw sewage was directly discharging into the creek in July 2023.</p> <p>However, if there is a concern that adverse effects are occurring on shorter timeframes than the monthly monitoring captures then we would expect to observe evidence of those adverse effects during the biological monitoring. Biological monitoring shows that that is not the case (except in 2023). Thus, even if there are times when the concentration of contaminants temporarily exceeds a 99% species protection chronic toxicity default guideline value, it is unlikely that they would exceed an equivalent acute guideline value if there was one. In addition, the further statistical analysis memo indicated that concentration trends appeared to be decreasing over time. Therefore, while I agree that the potential for higher concentration is a real concern, it is more likely that the slight but measurable effect does not result in any significant adverse effects on aquatic ecology because of the temporary nature of any such high concentration event.</p> <p>In terms of the potential effects that could occur under the proposed consent conditions, the key factor is that the overall nutrient load will be within the historic range. That is, while the overall flow of wastewater will increase with more skiers on the mountain, the wastewater will undergo additional treatment, such that the treated wastewater will have lower concentrations of total nitrogen than the existing wastewater discharge.</p> <p>This means that while the nutrient load stays the same, flows will be higher, and therefore the dilution and attenuation of the treated wastewater will likely be greater than the ratios presented in the Wastewater Impact Assessment.</p> <p>To date, a nutrient load assessment of the Rastus Burn has not been completed but this is planned following further investigations during the 2026 ski-season. Condition WW.37 addresses this.</p>
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TELNZ Q2	There is limited transparency in the way some datasets are presented graphically. Upstream data are generally shown as both instantaneous and rolling percentile measures, whereas downstream data for several attributes are presented only as rolling measures. Providing equivalent summary statistics and distributional information for both the discharge and receiving environment sites would improve clarity and interpretability.
e3s Response to Q2.	The graphs have been updated to include the instantaneous data points where these were previously excluded for ease of readability. The further statistical analysis section provides additional assessment of the data.
TELNZ Q3	The report relies heavily on earlier reports and references their conclusions as established findings. Appending these reports would assist reviewers in independently assessing the context and validity of those conclusions. Examples include: <ul style="list-style-type: none"> • Ryder (2014); and • SLR (2026).
e3s Response to Q3.	The biological monitoring reports are on record with ORC, as is all of the compliance monitoring data. However, it is agreed that the reports should be available to other parties and therefore they have been included as Appendix B.
TELNZ Q4	In several instances, additional supporting evidence or explanation would strengthen the conclusions presented. For example: <ul style="list-style-type: none"> • Section 4.2.2 does not provide supporting information for the assumed summer wastewater volumes and bypass flows; and • Section 3.9 states that "Overall, there appears to be no correlation", however no statistical analysis is presented in support of that conclusion.
e3s Response to Q4.	The Wastewater Impact Assessment has been updated to address these points. The second point was not in section 3.9 which is hazards, but was found in section 4.3.4.1 Turbidity/TSS/

TELNZ Q5	<p>There are currently no measured data supporting the conclusion in Table 15 and Section 4.5.3.2 that there is no potential for BOD5 to enter Rastus Burn. While I agree that the potential for particulate organic matter to reach the stream is likely limited, it would be helpful to include more direct consideration of whether soluble CBOD5 could enter surface waters. This information could then be considered within the ecological assessment when evaluating the potential for heterotrophic growths (e.g. sewage fungus).</p>
e3s Response to Q5.	<p>I have included a consideration of the effects of soluble / dissolved carbonaceous BOD on the Rastus Burn water quality in the updated Wastewater Impact Assessment. See section 4.5.3.2 cBOD5.</p> <p>Certificates of analysis for a sampling event on the 13 August 2026 are included as attachment A to this memo. They report the cBOD₅ concentrations from discharge point and in the Rastus Burn. Concentrations in the Rastus Burn were less than the limit of reporting (<2 mg O₂/L). This is consistent with historical sampling from 2014 which also reported Rastus Burn soluble BOD of less than the limit of reporting.</p> <p>The sample was collected 7 weeks after the ski-season discharge commenced so it is expected that the discharge to land would have migrated through the groundwater system and impacts would be detectable in the Rastus Burn by this time as during previous monitoring events impacts have been detected within one month of the ski-season commencing.</p>
TELNZ Q6	<p>Page 35 states that “the source of elevated nitrate in the Rastus Burn in the offseason is most likely related to diffuse biogeochemical processes occurring in the wider Remarkables Skifield, and not related to the point source nutrient load which conversely is largely discharged during winter.” Additional context would be helpful here. In particular, it is unclear whether these nutrient sources are entirely natural or whether they may also be influenced by ski field operations, which is relevant to the assessment of cumulative effects. Some discussion of this issue is included in the DRP section, although further development would be beneficial.</p>

<p>e3s Response to Q6.</p>	<p>Section 4.3.1.2 has been updated following further review of the data. The previous assessment incorrectly identified that concentrations were elevated in the offseason, this was only relevant for the wastewater discharge and not the Rastus Burn.</p> <p>Concentrations of TON in the Rastus Burn peak during winter as a result of the increase nitrogen load into the catchment from the wastewater discharge.</p> <p>The nitrate concentration in the wastewater discharge increases in the summer months as the wastewater system warms up and more ammonia can be nitrified in the system. Overall, however, the total nitrogen load is significantly lower in the off-season, so while the concentration of nitrate in the discharge increases, there is not an increase in nitrate in the Rastus Burn (e.g. Upstream and Downstream samples report similar concentrations).</p> <p>In terms of other sources of nutrients in the upper catchment, the skifield operation itself is not a source of nutrients as the snowmaking process does not require any nucleating compounds and other sources are controlled e.g. toilets in the base building. The most likely source of nutrients is from the natural biogeochemical cycling driven by weathering and flora and fauna.</p>
<p>TELNZ Q7</p>	<p>Downstream water quality is assessed primarily through comparison with upstream conditions, despite acknowledgement that the upstream site itself is influenced by "<i>biogeochemical processes occurring in the wider Remarkables Skifield</i>". It is possible that tributary inflows entering between the upstream and downstream monitoring sites are not affected to the same extent by these processes. As such, it would be useful to further isolate the nutrient contribution of the wastewater discharge itself, to better understand the extent to which downstream water quality may differ in the absence of the discharge.</p>

<p>e3s Response to Q7.</p>	<p>Ongoing investigation work to further define the discharge and the impacts on the Rastus Burn are occurring this ski season (2026). Whilst the upstream and downstream monitoring points may not specifically isolate the nutrient contribution of the wastewater discharge itself due to other inflows, the monitoring points do measure any cumulative effect of the skifields on the Rastus Burn.</p> <p>The current health of the stream is good-excellent, which includes cumulative effects. It is proposed to maintain this through the implementation of performance standards (that are to be confirmed in 2026) and an upgraded WWTP. No changes are proposed outside of this (i.e. upstream of the WW discharge), so isolating the effects of the WWTP further isn't going to change the outcome (i.e. good-excellent stream health including cumulative effects)</p> <p>Flow gauging is being undertaken on the Rastus Burn:</p> <ul style="list-style-type: none"> • At the Upstream Site; • A site 550m downstream of the Upstream Site, which is immediately above the next tributary, and is 180m above the Downstream 50m site; and • At the Downstream 200m site. <p>The flow gauging is being paired with a stream level stage at the Upstream site which has been surveyed. The purpose of this data is to generate flow conditions for each of the Monitoring sites across the ski season, and to pair this flow data with monthly surface water quality samples to generate nutrient load data for the Rastus Burn.</p>
<p>TELNZ Q8</p>	<p>A substantial portion of the assessment focuses on describing the historical discharge regime. However, for the purposes of the consent process, the key issue is understanding the range of effects that could reasonably occur under the proposed consent conditions. Accordingly, modelling of nutrient loads under a range of discharge and flow scenarios would assist in more fully characterising the effects of the proposed activity, particularly where past monitoring may not have captured the full range of conditions or effects associated with the discharge.</p>
<p>e3s Response to Q8.</p>	<p>As noted in response to Q1b, the nutrient load will stay within the assessed historic nutrient load range. NZSki have committed to an upgraded wastewater treatment system to maintain the nutrient loads</p>

	<p>while increasing wastewater flows. Thus, the range of effects that could occur under the proposed consent conditions are the same as what have been occurring e.g. good-excellent ecological indicators, no exceedances of 99% species protection chronic toxicity default guideline values.</p> <p>Further investigations are occurring over the 2026 ski season to determine the representativeness of the assessments that used the monthly grab samples and flow data for calculating the nutrient load.</p> <p>It is acknowledged that the concentration of nutrients in the Rastus Burn could be higher than those values previously reported, however (as discussed in the response to Q1b) it is unlikely that these persist for long enough to result in detectable adverse effects.</p>
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1.1 Responses to Actions from the 11th August Meeting.

1.1.1 Current Measured Effects

I have updated the dilution attenuation assessment to reflect the original purpose of the assessment which was to provide an understanding of the groundwater/surface water interactions that occur following discharge to land. The assessment found that there is a massive capacity (e.g. >100x dilution attenuation factor) for dilution/attenuation and that the background and wastewater contaminant (nutrient) load are the important factors in assessing whether there is the capacity for assimilating the discharge without adverse effects.

The background groundwater and surface water nutrient load has not been assessed to date as it requires information on flows to complete the calculation. Further investigation being undertaken during ski season 2026, .e.g flow gauging of the Rastus Burn and slug testing in the groundwater bores. Comments from Tim Baker confirm that this approach is what is required for a robust assessment.

1.1.2 cBOD₅ Monitoring

A sample was collected on 13 August 2026. All results were below the laboratory limit of reporting (<2 mg/L). Results are attached to this memo (Attachment A).

1.1.3 Understanding Future Effects: Mass Balance Modelling and Dilution Assessment

I have revised the dilution assessment to be clearer about the purpose of the assessment. As noted in 1.1.1 above, mass balance or nutrient loads will be assessed following the ski season 2026 when further data has been collected including the flow gauging of the Rastus Burn and Slug testing in the groundwater monitoring bores (proposed condition WW.36).

The dilution ratios presented in the previous versions of the WWDIA were for illustrative purposes showing the capacity for dilution on a given day and only assessed the change in concentration. However, in order to compare a dilution ratio from one day to another, the flow at the time of the measurement must be known e.g. the overall load. As the groundwater and Rastus Burn flows are not accurately known then it is not possible to apply a dilution ratio from one day to the concentration of any other day for assessing the 'theoretical worst-case' ammonia concentration in the Rastus Burn.

The compliance monitoring dataset provides a robust assessment of the concentrations of nutrients in the Rastus Burn. No sample exceeded a toxicity guideline for any parameter (ammonia or nitrate).

Mark Hamer is addressing instream biological guidelines (e.g. periphyton).

1.1.4 Understanding Future Effects: Summer Discharge Risk

To assess the summer discharge risk, I have updated the WWDIA V3 to include a breakdown of ammonia concentrations by season. This presents the seasonal maximum total ammoniacal concentration alongside pH values and estimated water temperatures to assess the likelihood of ammonia toxicity. All toxicity guidelines were met during all seasons, in particular summer when water temperatures are higher.

Historically the summer or off-season discharge has been negligible, NZSki estimated a maximum of 600 people visiting the site and using the public toilets (see Table 15 of the WWDIA V3) with approximately 6m³/day attributable (10L per person). Historically the off-season (November to May) load accounted for on average <5% of the total annual load. However, NZSki noted that the proposed consent conditions allow for summer operation of the gondola for up to four operational days per week. NZSki forecast increased summer patronage up to a maximum of 1200 people per day. Only the public toilets will be open so an additional wastewater flow of 6 m³/day (10 Litres per person per day) or up to 12m³/day total is expected during the off-season.

To account for this slight increase in wastewater flows and thus influent load, increased treatment capacity would be required to maintain the existing nutrient load discharged to the environment. The upgraded treatment system has yet to be confirmed with detailed design, Stantec may need to provide comment whether this additional off-season load would have a significant change to the feasibility and suitability of the options investigated by Stantec or not. Despite this, its likely that there would be a system that exists that could be configured to maintain the existing nutrient load to the environment with additional off-season load.

Therefore, with respect to the actual effects, as long as the upgraded treatment system meets the performance criteria described in proposed consent conditions, the discharge effects will be acceptable.

To aid in the assessment of the effects of the increased off-season wastewater flows, the flow gauging of the Rastus Burn should be extended to cover the full off-season (e.g. extended through to March 2027) so that there will be a full year of data collected.

2 SLR Consulting Comments

SLR Q1	<p>Section 3.5 Hydrology</p> <p>Almost all wastewater discharge to the RIBs eventually ends up in Rastus Burn, which means that understanding the flow regime, and having the ability to calculate contaminant mass-balances in the stream is important in assessing the effects of both the current and the future discharge. It appears the only flow gauging data are from a single event in May 2025 and that other flow data are assumed from NIWAs national river flow model. In my experience, that model is not appropriate for adopting in site specific assessments, and more flow gauging data should be provided to improve the reliability of this assessment.</p>
e3s Response to Q1	<p>As noted in the response to TELNZ, flow gauging is being completed during the 2026 ski season which will be paired with a continuous stream level stage at the upstream sample locations. The flow data will then be paired with the stage data to provide an assessment of flow at the gauging points across the monitoring period. This will allow for a more detailed assessment of the nutrient load in the Rastus Burn during the off-season and Ski-season, for comparison with the estimates of nutrient load from the treated wastewater. This approach is set out in Section 6 of the Wastewater Discharge Impact Assessment and Condition WW.37.</p>
SLR Q2	<p>Section 4.5 Contaminant Loads</p> <p>The contaminant loads calculated in this section are derived from the monthly wastewater discharge concentrations multiplied by the monthly wastewater flow. However, later in the report (Table 16) the representativeness of these monthly samples is questioned (also discussed in the Stantec assessment) and yet the results are then carried forward into the assessment of effects sections. Some further discussion on data accuracy, reliability, adequacy and representativeness would be helpful.</p>
e3s Response to Q1b	<p>Further statistical analysis has been carried out in response to TELNZ question 1a which may provide some of the information requested.</p> <p>The ongoing investigations include a sensitivity analysis for the methodology used to calculate the contaminant loads. This is achieved by collecting samples using an autosampler, to assess the</p>

	<p>representativeness of the monthly 10am grab samples collected historically compared to a 24-hour composite.</p> <p>The weight of evidence from the biological monitoring, the nutrient loads, and instream water quality indicates that the effects of the current discharge are acceptable. Therefore, the proposed consent conditions require that the discharge be treated such that the good to excellent aquatic ecology in the Rastus Burn is maintained despite an increase in wastewater flows.</p> <p>The method has been carried forward into the results because it is expected that they are a reasonably accurate estimate of the nutrient load, i.e. the assessment is at the level of detail required for an assessment of effects.</p>
SLR Q3	<p>Section 4.6 Proposed Preliminary Performance Criteria</p> <p>These performance criteria appear to be based on the contaminant loads calculated in Section 4.5. The proposed criteria are lower than those calculated by Stantec (Appendix B- 17 Section 3.4) and as such, it is not clear whether the assessment of effects on water quality (which is based on these numbers) is accurate. This section is critical in terms of presenting a robust assessment of effects so needs further work to ensure consistency and accuracy.</p> <p>It is noted that NZ Ski have 'confirmed that the current nutrient loads will be maintained to preserve the good-excellent aquatic ecology in the Rastus Burn despite an increase in patronage and associated wastewater flows' but given the uncertainty in data it is not clear what those current nutrient loads are.</p> <p>Further explanation is required to:</p> <ul style="list-style-type: none"> • Explain the discrepancy in wastewater nutrient loads between Stantec and e3 and which are correct/adopted for the AEE • Explain how these loads will change with the proposed increases in wastewater discharges • Determine what the impact of increased wastewater loads on water quality will be (quantified) • Clearly outline how performance criteria are linked to water quality objectives and that the WWTP design has considered this.

e3s Response to Q3.	Mitchell Daysh have provided a response to this question in their cover letter.
SLR Q4	<p>6.2 De-risking Investigations</p> <p>A significant amount of baseline data and operational information is currently unknown. This section suggests much will be collected over the coming summer. Typically, this information would be known prior to approvals being sought. A clear explanation as to how any new data would be incorporated into the design is required. Additionally, if the future data were to indicate a level of effect that is different from what is currently discussed, how that would be managed.</p>
e3s Response to Q4.	<p>SLR reviewer has reviewed the proposed conditions which set out how the assessments during ski season 2026 (not summer) will be used to validate the performance criteria, and thus the design of the upgrades for the wastewater treatment system.</p> <p>If the 2026 investigations indicate a level of effect that has not previously been observed, then the cause of this will be investigated and reported on as per the requirements of the proposed consent conditions. Ultimately, a higher level of treatment may be required to maintain the current and historic level of effects. Stantec's feasibility report sets out the different treatment options considered for the project from which NZSki and the regulator would determine the best option.</p>
SLR Q5	<p>Section 7 Assessment of Effects</p> <p>7.1 suggests that the proposed system will include nutrient management/treatment but it is not clear what the specifics of the system are, nor how this links in with the Stantec options assessment (i.e. which option proposed by Stantec is being assessed?).</p>
e3s Response to Q5.	Mitchell Daysh have provided a response to this question in their cover letter.
SLR Q6	<p>7.2 Effects on Soils</p> <p>There has been no sampling of seeps, groundwater exposures or soils so the assessment presented it largely qualitative. This section would</p>

	benefit from some quantification of groundwater quality below the RIBs and from an assessment of soil quality.
e3s Response to Q6.	<p>The section has been reviewed.</p> <p>Ultimately as the seepages all flow into the Rastus Burn, sampling the seepage would not provide any more information about the effects of the discharge than sampling the groundwater at the dispersal field and sampling surface water from the Rastus Burn.</p> <p>A seepage sample may be collected during the 2026 investigations but currently this is not in the scope of works.</p> <p>Seepage effects possibly materialise in wetlands and thus wetland monitoring is proposed in Condition WW.20 to WW.22, which details the wetland monitoring required.</p>
SLR Q7	<p>7.3 Effects on Groundwater Quality</p> <p>Again, this would benefit from some more quantification of groundwater impacts beyond the monitoring wells. I recognise this is steep and difficult terrain, but as it stands, the monitoring wells show significant impacts on groundwater but that is the extent of delineation of the effects.</p>
e3s Response to Q7.	<p>The scale and extent of effects on groundwater are reasonably well understood. The monitoring network was recently upgraded and extended and the surface water sample locations in the Rastus Burn provide for downgradient monitoring. A groundwater conceptual model has been provided in Section 3.5. There is no viable groundwater resource at this location and no groundwater users below the infiltration basins, so the seepage wetlands and Rastus Burn (and values therein) are the only sensitive receptor where there is a complete exposure pathway.</p> <p>Extending the groundwater monitoring network would provide a useful intermediate data point, but it is unlikely to change the assessment of effects beyond confirming that there is impacted groundwater at the dispersal field which is diluted and attenuated over a short distance before discharging to the Rastus Burn.</p>

Attachment A: Certificate of Analysis, 13 August 2026

ANALYTICAL REPORT

REPORT CODE	AR-26-NC-028725-01	REPORT DATE	25/08/2026
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Attention NZSki Limited
 Mark Sommerville
 9 Duke St
 Level 1
 9300 Queenstown
 NEW ZEALAND

Phone 027 274 4285

Email

Copy to: [REDACTED], John

[REDACTED], Bloomberg

Contact for your orders: James Thornton Contract: Remarkables Submission Reference: Remarkables - Rastus Burn	Order code: EUNZCH-00264528 Purchase Order Number: bu7060-Rassie
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SAMPLE CODE	817-2026-00074810
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Sample Name NC0001675003:RB Upstream Sampling Point code: NC0001675003 Reception Date & Time: 13/08/2026 12:27 Analysis Started on: 14/08/2026 Product Type surface water Sampler(s) NZSKI - Ross Sampled By Eurofins No	Sampling Point name: RB Upstream Analysis Ending Date: 25/08/2026 Sampled Date & Time 13/08/2026 09:00 Sampling Purpose Monitoring
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RESULTS

LOQ

NC03M Total Nitrogen in Water by Discrete Analyser (Trace)

Total Nitrogen (N)	0.17	mg/l	0.01
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NC03P Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace)

Phosphorus	0.003	mg/l	0.002
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NC03Q Turbidity in Water by Nephelometry

Turbidity	3.1	NTU	0.1
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NC04C Total Oxidised Nitrogen in Water by Discrete Analyser

Total Oxidised Nitrogen	0.11	mg/l	0.01
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NC05C Conductivity in Water by Portable Electrode

Conductivity	49	µS/cm	5
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NC0AF pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time)

pH	7.2		0.1
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NC0AK Ammoniacal Nitrogen by Discrete Analyser

Ammonia nitrogen	<0.01	mg/l	0.01
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NC76H Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 µm Filtered)

Carbonaceous Biochemical Oxygen Demand	<2	mg/l	2
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ZMJUH Enumeration of Escherichia coli by Membrane Filtration

Escherichia coli	<10	cfu/100 ml	10
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ZMJUL Enumeration of Faecal Coliforms by Membrane Filtration

Faecal Coliforms	<10	cfu/100 ml	10
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SAMPLE CODE 817-2026-00074811

Sample Name	NC0001675004:RB 50m Downstream	Sampling Point name:	RB 50m Downstream
Sampling Point code:	NC0001675004		
Reception Date & Time:	13/08/2026 12:27	Analysis Ending Date:	25/08/2026
Analysis Started on:	14/08/2026	Sampled Date & Time	13/08/2026 09:00
Product Type	surface water	Sampling Purpose	Monitoring
Sampler(s)	NZSKI - Ross		
Sampled By Eurofins	No		

RESULTS
LOQ

NC03M Total Nitrogen in Water by Discrete Analyser (Trace)			
Total Nitrogen (N)	0.15	mg/l	0.01
NC03P Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace)			
Phosphorus	0.002	mg/l	0.002
NC03Q Turbidity in Water by Nephelometry			
Turbidity	2.6	NTU	0.1
NC04C Total Oxidised Nitrogen in Water by Discrete Analyser			
Total Oxidised Nitrogen	0.10	mg/l	0.01
NC05C Conductivity in Water by Portable Electrode			
Conductivity	48	µS/cm	5
NC0AF pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time)			
pH	7.2		0.1
NC0AK Ammoniacal Nitrogen by Discrete Analyser			
Ammonia nitrogen	<0.01	mg/l	0.01
NC76H Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 µm Filtered)			
Carbonaceous Biochemical Oxygen Demand	<2	mg/l	2
ZMJUH Enumeration of Escherichia coli by Membrane Filtration			
Escherichia coli	<10	cfu/100 ml	10
ZMJUL Enumeration of Faecal Coliforms by Membrane Filtration			
Faecal Coliforms	<10	cfu/100 ml	10

SAMPLE CODE 817-2026-00074812

Sample Name	NC0001675005:RB 200m Downstream	Sampling Point name:	RB 200m Downstream
Sample Reference	1KM downstream		
Sampling Point code:	NC0001675005	Analysis Ending Date:	25/08/2026
Reception Date & Time:	13/08/2026 12:27	Sampled Date & Time	13/08/2026 09:00
Analysis Started on:	14/08/2026	Sampling Purpose	Monitoring
Product Type	surface water		
Sampler(s)	NZSKI - Ross		
Sampled By Eurofins	No		

RESULTS
LOQ

NC03M Total Nitrogen in Water by Discrete Analyser (Trace)			
Total Nitrogen (N)	0.23	mg/l	0.01
NC03P Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace)			
Phosphorus	0.004	mg/l	0.002
NC03Q Turbidity in Water by Nephelometry			
Turbidity	2.8	NTU	0.1
NC04C Total Oxidised Nitrogen in Water by Discrete Analyser			
Total Oxidised Nitrogen	0.17	mg/l	0.01
NC05C Conductivity in Water by Portable Electrode			

RESULTS			LOQ
NC05C	Conductivity in Water by Portable Electrode		
	Conductivity	41	μS/cm
			5
NC0AF	pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time)		
	pH	7.3	
			0.1
NC0AK	Ammoniacal Nitrogen by Discrete Analyser		
	Ammonia nitrogen	<0.01	mg/l
			0.01
NC76H	Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 μm Filtered)		
	Carbonaceous Biochemical Oxygen Demand	<2	mg/l
			2
ZMJUH	Enumeration of Escherichia coli by Membrane Filtration		
	Escherichia coli	10	cfu/100 ml
			10
ZMJUL	Enumeration of Faecal Coliforms by Membrane Filtration		
	Faecal Coliforms	10	cfu/100 ml
			10

SAMPLE CODE	817-2026-00074813		
Sample Name	NC0001675006:RB 1.5km Downstream		
Sampling Point code:	NC0001675006	Sampling Point name:	RB 1.5km Downstream
Reception Date & Time:	13/08/2026 12:27		
Analysis Started on:	14/08/2026	Analysis Ending Date:	25/08/2026
Product Type	surface water	Sampled Date & Time	13/08/2026 09:00
Sampler(s)	NZSKI - Ross	Sampling Purpose	Monitoring
Sampled By Eurofins	No		

RESULTS			LOQ
NC03M	Total Nitrogen in Water by Discrete Analyser (Trace)		
	Total Nitrogen (N)	0.20	mg/l
			0.01
NC03P	Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace)		
	Phosphorus	0.002	mg/l
			0.002
NC03Q	Turbidity in Water by Nephelometry		
	Turbidity	3.4	NTU
			0.1
NC04C	Total Oxidised Nitrogen in Water by Discrete Analyser		
	Total Oxidised Nitrogen	0.15	mg/l
			0.01
NC05C	Conductivity in Water by Portable Electrode		
	Conductivity	40	μS/cm
			5
NC0AF	pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time)		
	pH	7.3	
			0.1
NC0AK	Ammoniacal Nitrogen by Discrete Analyser		
	Ammonia nitrogen	<0.01	mg/l
			0.01
NC76H	Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 μm Filtered)		
	Carbonaceous Biochemical Oxygen Demand	<2	mg/l
			2
ZMJUH	Enumeration of Escherichia coli by Membrane Filtration		
	Escherichia coli	50	cfu/100 ml
			10
ZMJUL	Enumeration of Faecal Coliforms by Membrane Filtration		
	Faecal Coliforms	50	cfu/100 ml
			10

SAMPLE CODE		817-2026-00074814	
Sample Name	NC0001675007:Discharge Pipe		
Sampling Point code:	NC0001675007	Sampling Point name:	Discharge Pipe
Reception Date & Time:	13/08/2026 12:27		
Analysis Started on:	14/08/2026	Analysis Ending Date:	25/08/2026
Product Type	surface water	Sampled Date & Time	13/08/2026 10:00
Sampler(s)	NZSKI - Ross	Sampling Purpose	Monitoring
Sampled By Eurofins	No		
RESULTS		LOQ	

NC03M	Total Nitrogen in Water by Discrete Analyser (Trace)		
	Total Nitrogen (N)	177 mg/l	0.01
NC03P	Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace)		
	Phosphorus	6.65 mg/l	0.002
① NC03Q	Turbidity in Water by Nephelometry		
	Turbidity	190 NTU	0.1
NC04C	Total Oxidised Nitrogen in Water by Discrete Analyser		
	Total Oxidised Nitrogen	0.09 mg/l	0.01
NC05B	Total Biochemical Oxygen Demand (TBOD 5 Days) by Electrode		
	Biochemical oxygen demand (BOD)	219 mg/l	2
NC05C	Conductivity in Water by Portable Electrode		
	Conductivity	1700 µS/cm	5
NC0AE	Total Suspended Solids in Water by Gravimetry		
	Suspended Solids	192 mg/l	2.5
NC0AF	pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time)		
	pH	8.1	0.1
NC0AK	Ammoniacal Nitrogen by Discrete Analyser		
	Ammonia nitrogen	146 mg/l	0.01
NC76G	Total Phosphorus in Water by Discrete Analyser (Trace)		
	Total phosphorus	13.4 mg/l	0.01
NC76H	Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 µm Filtered)		
	Carbonaceous Biochemical Oxygen Demand	395 mg/l	2
① ZMJUI	Enumeration of Faecal Coliforms by Membrane Filtration		
	Faecal Coliforms	4.50x10 ⁶ cfu/100 ml	1000
① ZMJUJ	Enumeration of Escherichia coli by Membrane Filtration		
	Escherichia coli	3.40x10 ⁶ cfu/100 ml	1000

SAMPLE CODE		817-2026-00074815	
Sample Name	NC0001675008:Monitoring bore		
Sampling Point code:	NC0001675008	Sampling Point name:	Monitoring bore 1
Reception Date & Time:	13/08/2026 12:27		
Analysis Started on:	14/08/2026	Analysis Ending Date:	25/08/2026
Product Type	Ground water, raw water	Sampled Date & Time	13/08/2026 10:45
Sampler(s)	NZSKI - Ross	Sampling Purpose	Monitoring
Sampled By Eurofins	No		
RESULTS		LOQ	

NC03M	Total Nitrogen in Water by Discrete Analyser (Trace)		
	Total Nitrogen (N)	0.26 mg/l	0.01

RESULTS			LOQ
NC03P	Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace)		
	Phosphorus	0.042 mg/l	0.002
NC03Q	Turbidity in Water by Nephelometry		
	Turbidity	75 NTU	0.1
NC04C	Total Oxidised Nitrogen in Water by Discrete Analyser		
	Total Oxidised Nitrogen	0.02 mg/l	0.01
NC05B	Total Biochemical Oxygen Demand (TBOD 5 Days) by Electrode		
	Biochemical oxygen demand (BOD)	4 mg/l	2
NC05C	Conductivity in Water by Portable Electrode		
	Conductivity	33 µS/cm	5
NC0AE	Total Suspended Solids in Water by Gravimetry		
	Suspended Solids	175 mg/l	2.5
NC0AF	pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time)		
	pH	6.2	0.1
NC0AK	Ammoniacal Nitrogen by Discrete Analyser		
	Ammonia nitrogen	<0.01 mg/l	0.01
NC76G	Total Phosphorus in Water by Discrete Analyser (Trace)		
	Total phosphorus	0.10 mg/l	0.01
NC76H	Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 µm Filtered)		
	Carbonaceous Biochemical Oxygen Demand	8 mg/l	2
ZMJUH	Enumeration of Escherichia coli by Membrane Filtration		
	Escherichia coli	<10 cfu/100 ml	10
ZMJUL	Enumeration of Faecal Coliforms by Membrane Filtration		
	Faecal Coliforms	<10 cfu/100 ml	10

LIST OF METHODS

NC03M	Total Nitrogen in Water by Discrete Analyser (Trace): APHA 24th Edition 4500-P J/4500-NH * Test was performed at 142 Esk Street, Invercargill	NC03P	Dissolved Reactive Phosphorus in Water by Discrete Analyser (Trace): APHA 24th Edition 4500-P E * Test was performed at 142 Esk Street, Invercargill
NC03Q	Turbidity in Water by Nephelometry: APHA 24th Edition 2130 B mod. * Test was performed at 142 Esk Street, Invercargill	NC04C	Total Oxidised Nitrogen in Water by Discrete Analyser: APHA 24th Edition 4500-NO3 H * Test was performed at 142 Esk Street, Invercargill
NC05B	Total Biochemical Oxygen Demand (TBOD 5 Days) by Electrode: APHA 24th Edition 5210 B * Test was performed at 142 Esk Street, Invercargill	NC05C	Conductivity in Water by Portable Electrode: APHA 24th Edition 2510 B * Test was performed at 142 Esk Street, Invercargill
NC0AE	Total Suspended Solids in Water by Gravimetry: APHA 24th Edition 2540 D * Test was performed at 142 Esk Street, Invercargill	NC0AF	pH in Water by Manual Electrode (Tested beyond 15 minute APHA holding time): APHA 24th Edition 4500-H B * Test was performed at 142 Esk Street, Invercargill
NC0AK	Ammoniacal Nitrogen by Discrete Analyser: ISBN 0117516139 mod. * Test was performed at 142 Esk Street, Invercargill	NC76G	Total Phosphorus in Water by Discrete Analyser (Trace): APHA 24th Edition 4500-P B/J mod. * Test was performed at 142 Esk Street, Invercargill
NC76H	Dissolved Carbonaceous Biochemical Oxygen Demand in Water by DO Meter (1.2 µm Filtered): APHA 24th Edition 5210 B * Test was performed at 142 Esk Street, Invercargill	ZMJUH	Escherichia coli E [IVC] <10 >60 000 cfu/100 ml (0-1) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition * Test was performed at 142 Esk Street, Invercargill
ZMJUI	Faecal Coliforms E [IVC] <1 000 >60 000 000 cfu/100 ml (1-4) m-FC Agar-F: SMEWW 9222D; APHA 24th Edition * Test was performed at 142 Esk Street, Invercargill	ZMJUJ	Escherichia coli E [IVC] <1 000 >60 000 000 cfu/100 ml (1-4) m-FC Agar-F: SMEWW 9222I; APHA 24th Edition * Test was performed at 142 Esk Street, Invercargill

ZMJUL **Faecal Coliforms E [IVC] <10 >60 000 cfu/100 ml (0-1)**
m-FC Agar-F: SMEWW 9222D; APHA 24th Edition
 * Test was performed at 142 Esk Street, Invercargill

Signature



Tonia Bulling Head of Southern
Laboratory (K.T.P)

EXPLANATORY NOTE

- ① Test is not accredited
- ② Test is subcontracted within Eurofins group and is accredited
- ③ Test is subcontracted within Eurofins group and is not accredited
- ④ Test is subcontracted outside Eurofins group and is accredited
- ⑤ Test is subcontracted outside Eurofins group and is not accredited
- ⑥ Test result is provided by the customer and is not accredited
- ⑦ Tested at the sampling point by Eurofins and is not accredited
- ⑧ Tested at the sampling point by Eurofins and is accredited
- ⑨ Test is RLP accredited
- ⑩ Test is subcontracted within Eurofins group and is RLP accredited

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Unless otherwise stated, all tests (except subcontracted tests) are performed at Unit 1/74 Glenda Drive, Frankton, Queenstown.

N/A means Not Applicable

Not Detected means not detected at or above the Limit of Quantification (LOQ)

LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit

✗ (Unsatisfactory) means does not meet the specification

✓ (Satisfactory) means meets the specification

MAV means Maximum Allowable Value

END OF REPORT