

CLUTHA DISTRICT COUNCIL

Notice is hereby given that a Meeting of the Infrastructure Strategy & Operations Committee will be held in the Council Chambers, 1 Rosebank Terrace, Balclutha on Wednesday 24 April 2024, following the Corporate & Property Committee meeting.

Steve Hill
CHIEF EXECUTIVE OFFICER

Committee Members

Councillor Bruce Graham (Chairman)
Councillor Kevin Barron
Councillor Dane Catherwood
Councillor Wayne Felts
Councillor Gaynor Finch
Councillor John Herbert
Councillor Michele Kennedy
Councillor Alison Ludemann

Mayor Bryan Cadogan
Councillor Simon McAtamney
Councillor Dean McCrostie
Councillor Brent Mackie
Councillor Jock Martin
Councillor Ken Payne
Councillor Bruce Vollweiler

INFRASTRUCTURE STRATEGY & OPERATIONS COMMITTEE 24 APRIL 2024

APOLOGIES

Councillor Kevin Barron

DECLARATIONS OF INTEREST

No declarations of interest advised at the time of printing this agenda.

Item	Page #	Title
1.	3	Operations Update – Transportation <i>(For the Committee's Information)</i> Reports progress on transportation items within the department.
2.	9	Operations Update – Greenspace and Waste <i>(For the Committee's Information)</i> Reports progress on greenspace and waste matters within the department.
3.	12	Operations Update – Three Waters <i>(For the Committee's Information)</i> Reports progress on Three Waters matters within the department.
4.	17	Infrastructure Strategy & Delivery Update <i>(For the Committee's Information)</i> The report provides information on various Projects/Contracts that are in progress at this time.
5.	30	Compliance Update Report <i>(For the Committee's Information)</i> The report provides updates on compliance-related issues across the Service Delivery Department.

Infrastructure Strategy & Operations Committee

Item for INFORMATION

Report	Operations Update – Transportation
Meeting Date	24 April 2024
Item Number	1
Prepared By	James Allison – Transportation Operations Manager
File Reference	888384

REPORT SUMMARY

The report details items from the Operations Transportation Team that are for information only.

RECOMMENDATIONS

- 1. That the Infrastructure Strategy & Operations Committee receives the ‘Operations Update – Transportation’ report dated 24 April 2024.**

REPORT

1. Health and Safety

There were 5 Incidents, and 13 near hits on the Roothing Contract last month. With similar key risks identified by our contractor again this month.

- (1) overhead and underground cable strikes.
- (2) Public failing to slow/stop at intersections.
- (3) Unsafe passing by third party vehicles.

2. Roothing

The metaling trucks have been working out of the Balclutha quarry, with about 8,000 tonnes laid on the network during March. They are about to move into the Catlins carting from Warnock Rd quarry, then (after the Otago Rally) they will move on to the Tuapeka area carting from Lyders quarry.

Last month the digger crews cleared close to 5km of water tables. Also, SouthRoads have jetted 22 Culverts and replaced 4. There are site line improvements programmed on Cannibal Bay Rd for May.

The Routine Crews have been focusing on improving visibility on the network – cutting back vegetation, cleaning signs and renewing edge marker posts. They have also filled 90 potholes in sealed roads and completed 357m of edge break repairs, across the network.

SouthRoads have claimed 80% of their allocated roading budget at 75% of the way through the year.

3. Streetlight Maintenance Contract

Part of the new street light contract included an infill lighting program. This is where we have identified dark areas in the street light network due to the new Led lights having a more focused light pattern than the old sodium lights. The contractor is intending to start in Tapanui, followed by Clinton. This work is programmed to begin mid-May.

4. Last Month's Public Forum

The Head of Infrastructure Operations communicated with Brodie Dodds, after the meeting, with regards to discussing some of the feedback provided by her and the potential for incorporating her advice into future policy. At Brodie's request this is on hold until she is available to focus on this.

There is ongoing discussion with our current contractor with regards to the feedback provided on current performance. In the short term we have made the following changes to weed control and the identification of no spray areas:

The sub-contractor will provide all operators with copies of maps provided by Clutha District Council.

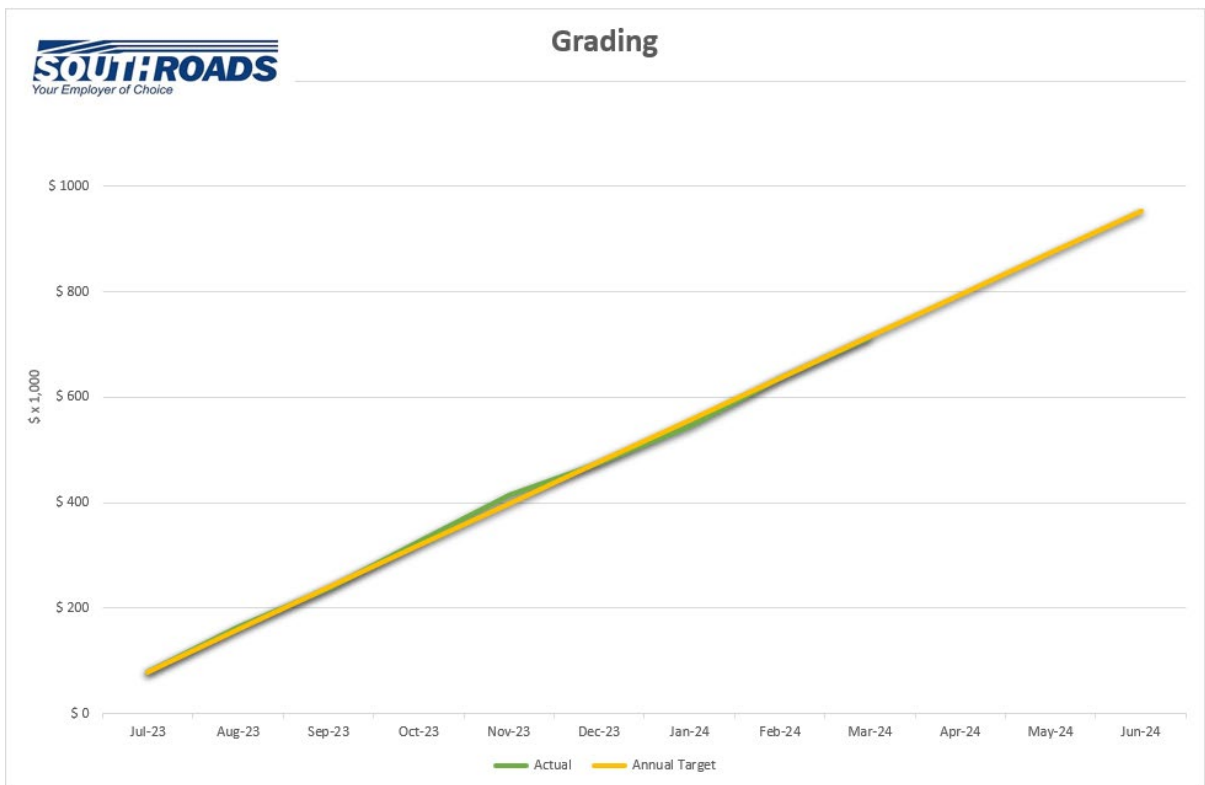
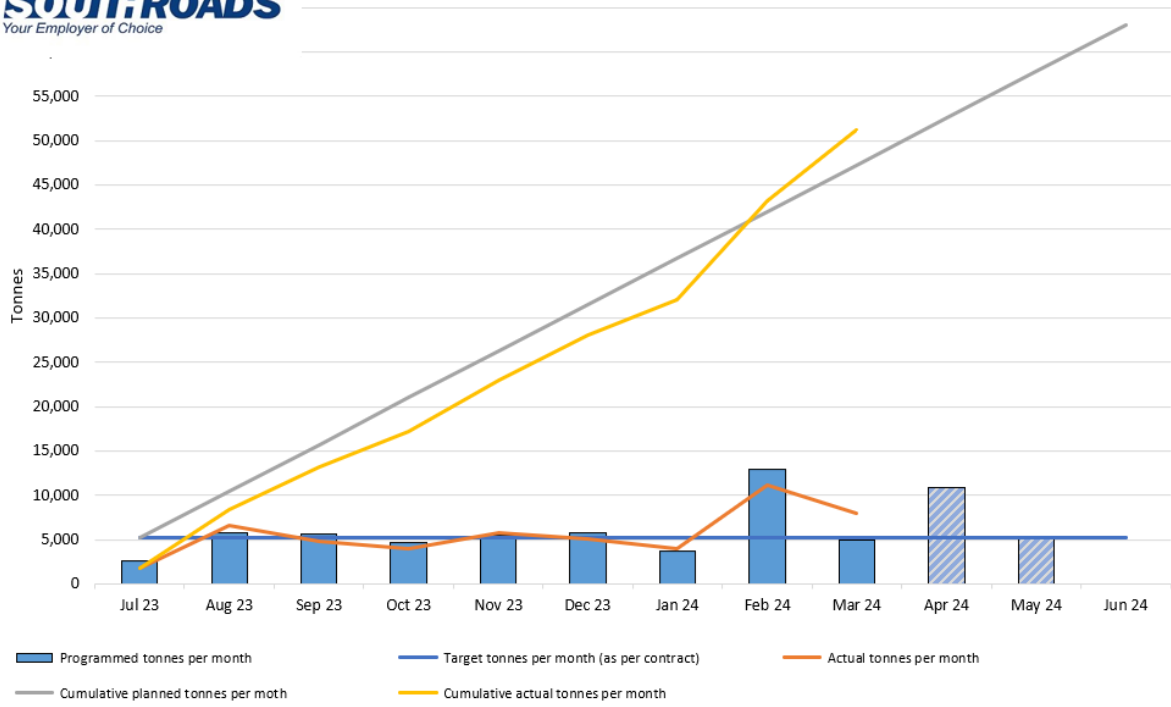
The sub-contractor has formalised their internal audit process on the inspection of recently completed spraying. We are continuing the monitoring of this process.

We have entered discussions with contractors and sub-contractors on wilding trees, and shrubs that were identified through the audit process.

We are also investigating technology that would enable GPS tracking and GPS blocking of the spraying operations.

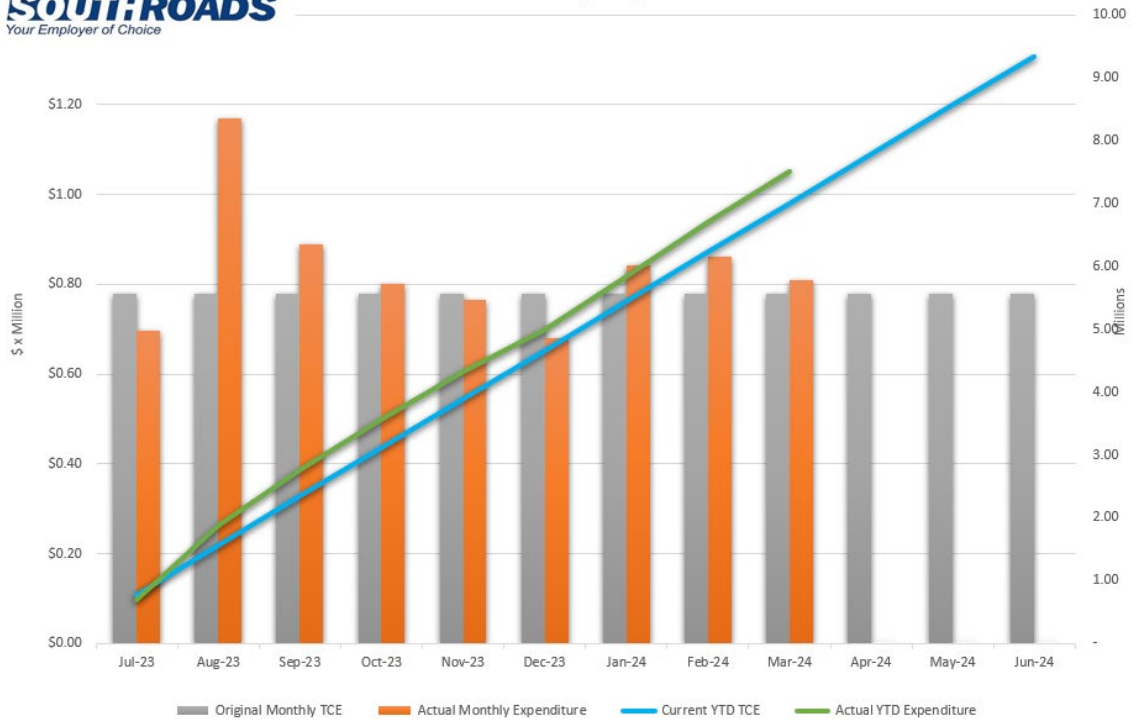


Metalling



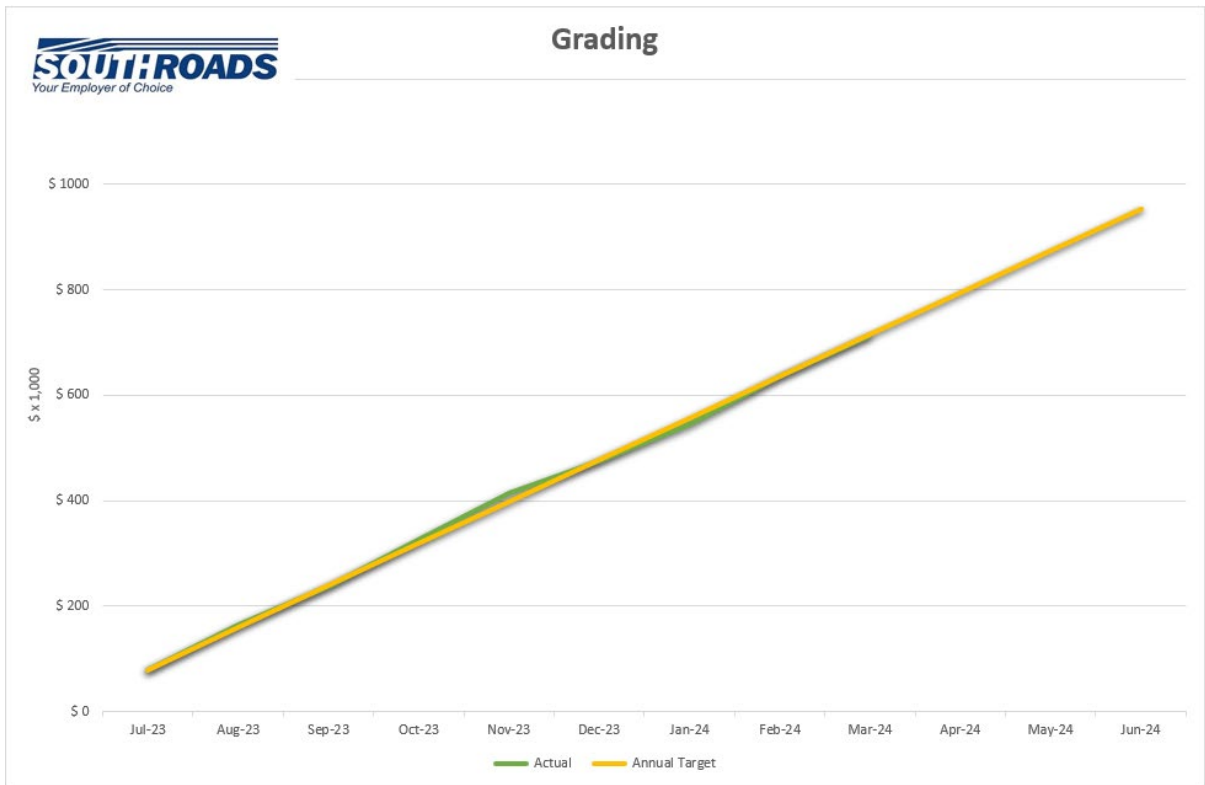
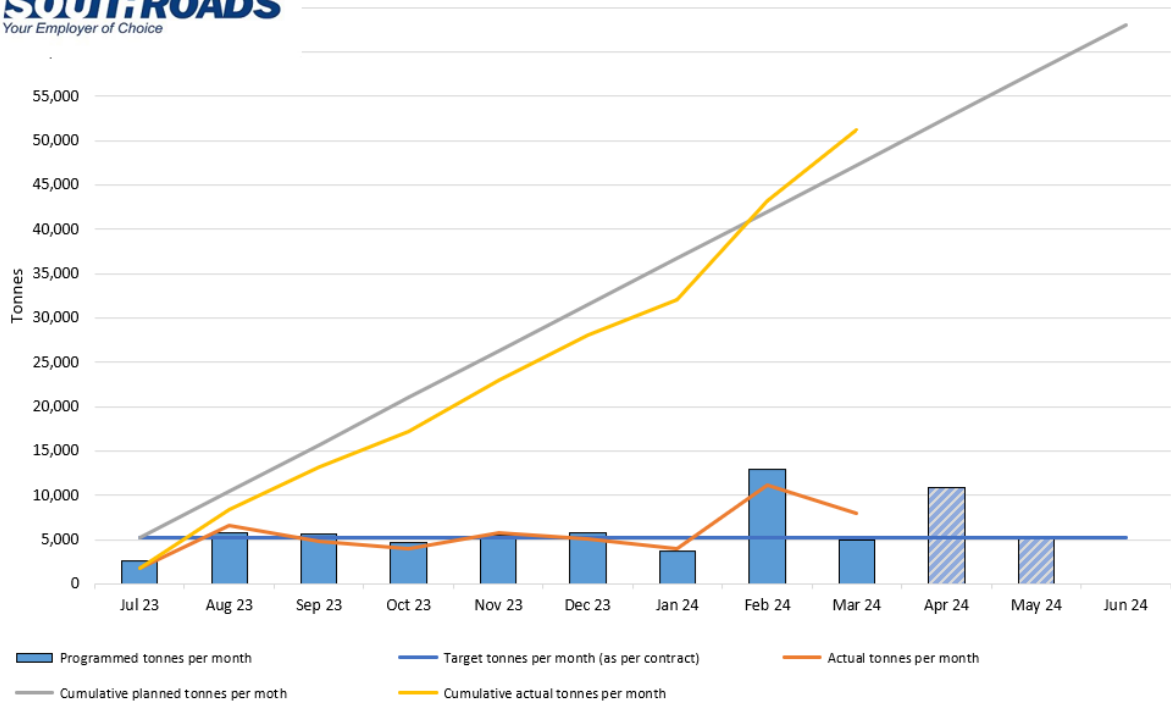


YTD vs Monthly Expenditure



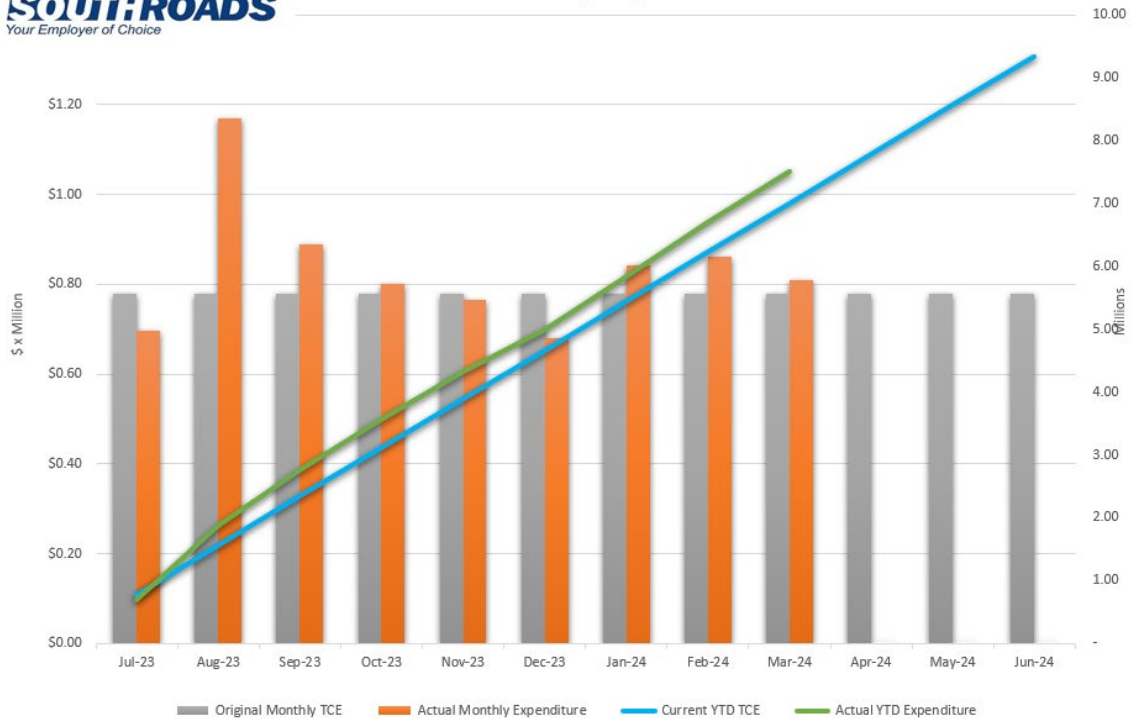


Metalling





YTD vs Monthly Expenditure



Infrastructure Strategy & Operations Committee

Item for INFORMATION

Report	Operations Update – Greenspace & Waste
Meeting Date	24 April 2024
Item Number	2
Prepared By	Jason Foster – Head of Infrastructure Operations
File Reference	888387

REPORT SUMMARY

The report details items from the Operations Greenspace & Waste Team that are for information only.

RECOMMENDATIONS

- 1. That the Infrastructure Strategy & Operations Committee receives the ‘Operations Update – Greenspace & Waste’ report dated 24 April 2024.**

REPORT

1. Health and Safety

It is pleasing to report that over the past six weeks, there have been no health and safety incidents involving contractors. However, while this is a positive outcome, the absence of reported near misses does not necessarily equate to a complete absence of potential safety concerns.

To further strengthen our safety culture, the council and contractors will be collaborating on a series of internal safety audits in the coming weeks. This proactive approach will ensure the continued well-being of all personnel working on council projects.

2. Greenspace

Greenspace successfully completed its planned activities for March 2024, maintaining cemeteries, parks, and sports grounds across the Clutha District. This work included replacing broken fixtures like toilet roll holders, removing hazards such as broken glass and dead trees, attention was also given to tidying several sites by cleaning up debris and trimming overgrown vegetation.

Lawrence: Implemented wasp control using Vespex bait stations in reserves and non-toxic traps along the main street. This year's effort will be expanded next season to proactively manage wasp populations.

Kaitangata: Removed a diseased and heavily damaged oak tree (approx. 20 meters) from the sports field due to safety concerns. The extensive insect damage and missing bark posed a high risk of unexpected failure.



Balclutha: Vegetation has been removed and cut back around Balclutha Bridge fence in preparation for the fence replacement.

Taieri Mouth: signs and a seating tire had to be reinstated after vehicle damage at Knarston Park as well as a worn balance board at Livingstonia Park playground was removed, repaired and re-instated.

Non-Routine Budgets

The current spend for non-routine across all townships has exceeded budget for 2023/24. This budget covers all tasks not undertaken as part of routine maintenance as summarised below. The majority of this overspend can be covered by cost savings in the routine maintenance budgets. Over the next three months however, only tasks related to maintaining the condition of existing assets, and essential health and safety work will be considered.

The following is a summary non-routine undertaken within this budget header.

- **Park and Playground Maintenance:** This includes tasks like swing repairs tree removal and pruning, extra weeding, mowing and grass removal, as well as bin installation and repair and graffiti removal.
- **Planting and Greenery:** This includes planting new trees, shrubs, and flowers hedge trimming and irrigation repair.
- **Signage and Amenities:** This includes installing and repairing signs repairing drinking fountains and additional cleaning on misused public toilets.
- **Storm Damage Cleanup:** This includes cleaning up debris from storms.
- **Other:** This category includes a variety of miscellaneous tasks like cleaning ponds, removing dead animals, Pest control and repairing fences.

3. Waste

Vivek Arun, our Contract Supervisor for Waste Management, joined the Infrastructure Operations team during this round of reporting. Vivek brings his expertise and experience to the team in developing strategic directions and implementing cost-effective waste management solutions. Good contract governance, environment monitoring, and contract extensions will be the area of focus.

Waste Collection and Landfill Operations

With the appointment of Vivek, we expect to build on the dialog as presented in this update. Overall, the most noteworthy item are the collection truck breakdowns that resulted in collection delays. Overall waste and recycling services remained reasonably stable this period and there was a slight uptick in resident requests which overall were managed well.

Contract Negotiations, and 20/24 operating budgets.

A report was submitted to Council on the 27 March 2024, detailing contract negotiations for Solid Waste services.

This report summarised out current contact arrangements and the necessity to review and update. This update will facilitate an increase in collection and landfill operation costs for the 2023/24 operational budgets. To what extent is not yet quantified as the negotiations are ongoing but will be subject to an additional update.

Infrastructure Strategy & Operations Committee

Item for INFORMATION

Report	Operations Update – Water
Meeting Date	24 April 2024
Item Number	3
Prepared By	Linda Till – Head of Three Waters
File Reference	888388

REPORT SUMMARY

The report provides updates from the Operations Water Team that are for information only.

RECOMMENDATIONS

- 1. That the Infrastructure Strategy & Operations Committee receives the ‘Operations Update – Water’ report dated 24 April 2024.**

REPORT

1. Water

Staffing

An internal promotion for a water treatment operator, and two resignations created three vacancies within the water treatment team. All roles have been filled – one through an internal movement and the others through external appointments. It is pleasing to see that there is good interest in the industry, but unfortunately little interest from trained operators.

We are currently recruiting to fill a vacant Water Services Technician role and a Compliance Engineer role that has been vacant for some time, to boost the Compliance & Reporting team back to full strength to meet our reporting obligations.

Phoenix Dam

The level of the dam reached a 4-metre reduction in early April however, the rainfall on 11 April restored the level to around 3.5 metres.

A consent application for the bypass around the western side of the dam was lodged with ORC on 8 April 2024. The work involves construction of a small temporary weir to aid with gravity feed to any potentially piped sections of the bypass, in the catchment above the dam.

The outer race once operational will bypass the Phoenix Dam and direct the incoming water flows from the Bluejacket and Bungtown creeks directly to the spillway downstream of the dam.

On 9 April Council advised ORC that work on the bypass was commencing pursuant to the exercise of emergency powers under sections 330(1) and (2) of the RMA. ORC acknowledged the notification on 12 April 2024.

There are 3 separate packages of work underway to ensure continuity of supply and improve the quality of the water to the intake at the Lawrence WTP.

1. Bypassing Bluejacket Creek around Phoenix Dam: Work beginning 11 April 2024, due for completion within 2 weeks.
2. Replacing the siphon and race from the weir in Bungtown Creek to the tunnel, with a new siphon and pipework. Siphon construction underway, expected work package completion by 30 April.
3. Restoring the race downstream of the tunnel. Work will start after completion of the bypass, with an expected completion by 21 May – but the scope may change once work begins.

Lawrence

An aluminium advisory was issued for Lawrence on 17 January 2024 after an exceedance result was returned from the network in samples taken on 11 January 2024. This remains in place as further exceedances have been received. Limited flushing can be undertaken noting that the town remains on Stage 3 restrictions. Recent results have shown an improvement however the advisory remains in place at the time of writing.

Following several low free available chlorine (FAC) results the town was placed on a Boil Water Notice on 4 March 2024. Treated potable water from Balclutha is currently supplied to tanks located on Lancaster and Irvine Streets.

Further to this we received a letter from Taumata Arowai following their site visit/audit on 8 March where they expressed concerns over the condition of the Lawrence treatment plant, noting it is to be replaced by the Greenfield scheme in late 2024. To try and avoid keeping the boil water notice on until then the Operations team have been working with contractors to develop a shorter-term solution involving upgrading the UV disinfection process at the plant. The notice remains in place at the time of writing.

Milton

Work is ongoing at the Milton Treatment Plant following the audit by Taumata Arowai and the issuing of a Compliance Order on 24 November 2023.

Work to install chlorine monitoring at the reservoir is expected to be complete by late April. This is also a requirement of the original Compliance order. Council formally requested an extension of this condition until late May to allow for installation and commissioning. The extension was granted on 5 April, with a replacement order being issued.

Taumata Arowai Reviews and Audits

On March 7 and 8, staff from the team met with auditors from Taumata Arowai for site visits at North Bruce, Stirling, Moa Flat, and Lawrence plants. Full audit findings have not been provided by Taumata Arowai at time of writing, but a summary meeting is expected to occur in mid-April.

Feedback from Taumata Arowai regarding key issues they identified at the Lawrence water treatment plant was provided by email on March 21. The team provided Taumata Arowai with a 10-point action plan, which included placing the Lawrence drinking-water supply on a boil water notice. Regular updates will be provided to Taumata Arowai with progress on the required improvements.

An action plan for updating the Drinking Water Safety Plans for Balclutha, Owaka, Glenkenich, Clydevale-Pomahaka, Kaitangata, and Tapanui was submitted to Taumata Arowai on March 22. The review of the Milton DWSP that is required by the Compliance Order has been included in this action plan.

Taumata Arowai has accepted this plan and will be provided with regular updates on progress by the Team Leader Compliance and Reporting.

Reticulation Contract

Contractual negotiations for reticulation maintenance arrangements are reliant on back-to-back contract arrangements being agreed between the lead contractor and the sub-contractors partnering with them. The margin applicable for contract works between the lead contractor and Council has been agreed, with charges reduced effective 1 March.

Crown Street Capacity

The portable building supplier that we had made arrangements with for an additional building at Crown Street has not been able to meet code of compliance requirements, which in turn are required for the building consent needed to place the buildings on site. We have identified a potential alternative supplier who will be better able to comply with consent requirements for a portable building and are currently investigating this option in parallel with trying to get the originally planned supplier to comply with code of compliance requirements.

2. Wastewater and Stormwater

Biofiltro sites

Work is continuing to improve the performance of the five Biofiltro wastewater treatment plants (WWTPs). Following successful replacement of the PLC (programmable logic controller – the plant’s ‘brains’) and associated control system at the Stirling site in early March, the PLCs/controls at the Kaka Point and Lawrence sites will be replaced during w/c 15 April. Replacements at the remaining two sites (Owaka and Tapanui) are expected to be completed in the following two weeks.

After full replacement of the treatment beds at the Kaka Point and Lawrence sites in February, performance of both plants has improved considerably, albeit a separate issue (now resolved) at Kaka Point did cause failures against specific consented discharge parameters since the replacement.

Bed replacements at the remaining three Biofiltro sites are required. However, until leaks and cross-connections within the upstream sewer networks at Owaka and Tapanui are resolved to reduce excessive flows, these replacements will not be cost-effective. The intent is that all three Biofiltro bed replacements will be undertaken in the summer of 2024/25, assuming good progress with eliminating the bulk of the sewer flow issues over intervening months.

In March, Otago Regional Council (ORC) invited us to propose new consent conditions for effluent discharge compliance monitoring at all five Biofiltro sites. This reflects the poorly written, confusing, and unenforceable existing conditions, as identified by the presiding judge at the court case between ORC and Citycare Water in 2023. We have since drafted revised conditions, for submission to ORC during w/c 15 April.

Related to the above point, the remaining four outstanding Abatement Notices issued by ORC (for the Kaka Point, Lawrence, Owaka and Stirling sites) have been cancelled.

Other Wastewater Treatment Plants and General

For the first time since at least mid-2019, the Milton WWTP was fully compliant with consented effluent quality parameters in March. This trend has continued into April. Further improvement actions are, however, on-going; including a major overhaul of the UV disinfection system by the manufacturer scheduled for 30 April.

Significant capital upgrades at the Balclutha, Clinton and Waihola WWTPs are nearing completion; with most equipment now installed at all sites and just awaiting mains power supply connections. Once commissioned in April – May, improvements in discharged effluent quality should soon be seen at all three WWTPs.

ORC site audits took place at the Balclutha, Clinton, Milton, and Waihola WWTPs during February, in conjunction with CDC staff. The remaining seven WWTPs (Heriot, Kaitangata, Kaka Point, Lawrence, Owaka, Stirling and Tapanui) were audited in late March. The audits provided an opportunity to demonstrate to ORC both the capital upgrades being undertaken and the fundamental change in practices since taking three waters operational management back in house since July last year. We have been informed that the audit reports and associated action points will be issued in May – June.

It is worth noting that the working relationship with ORC has become more constructive in recent months as evidence of the various upgrades has been seen, along with the greater responsiveness by Council staff to ORC concerns.

From March, an enhanced routine sampling regime has been instigated at all 11 WWTPs, whereby samples are now being taken for analysis throughout the major treatment stages, rather than just the final effluent being discharged to receiving waters for compliance purposes. Although entailing additional cost, this new regime will provide a proactive understanding of the performance of each treatment stage, as well as forewarning of problematic discharges into the WWTP. It will also inform decisions around the necessity (or not) of process improvements, including capital upgrades.

3 I&I Inspection Programme

There has been no noteworthy progress since the previous report. For the month of March only one property owner from Heriot notified council on the completion of remedial works. It appears that property owners with houses on the market are much more willing to comply than the rest of the community. Another round of an awareness campaign will need to be initiated. The issue around unknown down pipe terminations still need to be resolved. Council now has a smoke test machine and further investigation to determine cross flows will be conducted.

Table1: I&I Inspection Programme

Community	Contacted Council	Total non-compliant (Apr 2024)	Non-compliant gully trap(s) (initial)	Non-compliant gully trap(s) Apr 2024)	Stormwater pipe or drain directly connected to the sewerage system. (Initial)	Stormwater pipe or drain directly connected to the sewerage system (April 2024)	Some of the downpipe terminations are still unknown. (Initial)	Some of the downpipe terminations are still unknown. (April 2024)
Balclutha	317	36	413	20	160	12	241	11
Stirling	24	4	28	1	18	3	45	1
Tapanui	123	27	164	16	48	8	94	6
Clinton	38	6	39	3	28	6	21	0
Heriot	14	2	21	2	12	2	8	2
Kaitangata	62	14	61	6	67	12	100	4
Kaka	46	12	35	6	28	5	35	2
Lawrence	68	8	62	7	36	2	62	3
Owaka	40	4	66	2	25	4	29	0
Milton	225	45	311	40	67	5	169	10
Waiholā	36	3	46	3	7	0	13	0
Grand Total	993	161	1246	106	496	58	817	38

*Note - each property could have more than one gully trap(s), down pipes, and unknown downpipe terminations.

Infrastructure Strategy & Operations Committee

Item for INFORMATION

Report	Infrastructure Strategy & Delivery Update
Meeting Date	24 April 2024
Item Number	4
Prepared By	Donna McArthur – Head of Infrastructure Strategy & Delivery
File Reference	888396

REPORT SUMMARY

The report details items from the Infrastructure Strategy & Delivery Team for information and discussion.

RECOMMENDATIONS

1. That the Infrastructure Strategy & Operations Committee receives the 'Infrastructure Strategy & Delivery Update' report dated 24 April 2024.

REPORT

1 Asset Management - THREE WATERS

1.1 Greenfield Bore Placement and Land Purchase

Final agreements have been arranged for the bore and the treatment plant sites. Landowners have given approval and is with lawyers.

Drilling the Greenfield Rural Water Scheme bores commences week of April 8th.

1.2 Balclutha Water Treatment Plant Intake Upgrade

In May 2023, the Clutha District Council approached Stantec to request a re-assessment of the structure as part of the health and safety improvement program and renewals program. Considering that the previous assessment took place nearly five years ago and the recommendations have not been implemented, there is a possibility of further deterioration. Therefore, a reassessment of the structure is necessary to identify any issues (existing and new) and provide appropriate recommendations to ensure the safe use of the structure.

Detailed design drawings have been completed with collaboration from the Water Operations team and construction drawings are progressing along with tender documents.

The site is a popular diving spot with locals, and the design team has designed several options to create safe and accessible areas for diving and river activities. Cost estimates have been determined, and a report will be written for council to consider.

1.3 Lawrence Stormwater Modelling

Recent storms, including a 1 in 40-year event in February 2020, resulted in flooding to areas in Lawrence and underscored the need for action.

The project's main objectives are to identify flood-prone areas and investigate infrastructure solutions. This involves modelling storm events, assessing what the existing infrastructure can handle and what improvements can be made to protect properties and ensure better stormwater management.

A model has been developed and stormwater engineers are now undertaking an options analysis and flood mitigation options for Lawrence Township. A report on these options is expected for review on the week of April 22nd.

1.4 Wastewater – Initial Land Treatment Investigations

Driven by evolving regulations, rising costs, and a growing focus on environmental protection, the Clutha District Council (CDC) is reviewing its wastewater management practices for various communities. One potential option being explored is land-based discharge.

To evaluate this option, an environmental engineering consultant was engaged in early December 2022 to develop a report on potential disposal options. Building on this initial work, further investigations in 2023 focused on identifying suitable land treatment areas within a 10 km radius of all 11 existing CDC wastewater treatment plants.

This comprehensive report has now been presented to the council and the local Runanga.

Following initial discussions with the council and Runanga, the next steps involve comprehensive community engagement. This includes:

- **Iwi and Hapu Engagement:** Collaborative planning workshops will be held after an initial technical briefing, ensuring cultural considerations are integrated throughout the process.
- **Detailed Investigations:** Working with consultants, potential land treatment zones will be further refined, with engineering studies and cost estimates developed.
- **Community Outreach:** Public information sessions will be held alongside collaboration opportunities to ensure transparency and community input.

1.5 CDC Development Engineering Code of Practice

To promote efficiency and consistency across the Clutha District, we're proposing a collaborative effort with neighbouring councils to develop an engineering code of practice. This approach will benefit CDC, service providers and contractors.

Working together, we can avoid duplicating efforts and ensure a single, consistent code. Ultimately, a code will foster a more efficient and effective management and construction environment for everyone involved.

An initial kick-off meeting with CDC staff was held in March, and we are now in further discussions with Dunedin City Council.

2. Asset Management – ROADING

2.1 Asset Management Data Standard (AMDS)

The AMDS migration date has been pushed until end of November 2024. The migration has been pushed out to ensure that we do not have conflicts in June when the end of financial year closes and data must be closed off in RAMM's Finances.

3. Asset Management – FACILITIES & WASTE

3.1 Fleet Asset Register

The compilation of the Council fleet assets into a standard register is 80% complete. The register will be kept on both M-Files and SafetyCulture. We have developed a structured format for data entry and validation procedure. Currently preparing the register for reporting and asset life cycle management.

3.2 Fleet Management

Our team has assumed responsibility for routine fleet management activities including service and maintenance scheduling. The team has undergone SafetyCulture training and Smartrak training is scheduled for 22 April 2024. Currently conducting an analysis of fleet condition, performance and utilisation patterns.

3.3 Fleet Policies, Processes and Reporting

The Council vehicle use policy is due for review. We are currently consulting stakeholders and analysing vehicle usage data to draft a proposal for the vehicle use policy. We are developing reporting mechanisms for fleet management.

3.3 Facilities Asset Management

Asset Discovery for Facilities is at 30%. We are reviewing current data sources and have visited some of the facilities in the district. Currently defining the structure of the asset register. We are reviewing Smart Power proposals to enhance energy efficiency within our facilities.

3.4 Waste Asset Management

Reviewing the Waste Minimisation and Management Plan (WMMP) and Long-Term Plan (LTP) – consultation period ends 15 May 2024. There is also work to define roles and interactions between the Operational and Strategic team. Asset discovery is at 80% and asset register compilation is underway.

4. Roding

4.1 Contract 836 - Chatham and Sheerness Street Slip - Waihola

Clearwater Civil has completed and practical completion has been issued.



4.2 Contract 860 – Rehabilitation 2022/24 - Catlins

The Contractor completed the original contract works. Dust suppressions and traction seals have been added as a separable portion. The Contractor has completed the drainage work on Riverside Road, Taieri Mouth and placed the aggregate layers on the first traction seal on Mt Stuart Road-

4.3 Contract 825 – Box Culverts – Catlins/Heriot

All box culverts in the contract works have now been completed and have now been handed back to operations for their ongoing maintenance programs.

4.4 Contract 827 – Bridge Repairs 2021/22 – Waitahuna Bridges Remain

Bridge 482, Roberts Road has now been completed and is open. Suspension Bridge 476, Ashton Road is being strengthened and work is progressing on abutment anchors.

4.5 Contract 807 – Renewal of Bridge Abutments - Bridge 451 Waipori Road

All the works on the bridge are completed and it's open to the public. It's now in the defects liability period.

4.6 Contract 829 – Bridge Repairs 2022/24 – District Wide

The contractor has one bridge remaining for work within the waterway to complete then they will progress the above groundwork.

4.7 Contract 858 – Reseal & Pre-Seal Repairs

The contract was awarded to Fulton Hogan, all the pre-seal repairs are completed and 75% of resealing has been completed. All other works are progressing well and will be finished by the end of April 2024 for year 1.

4.8 Contract 861 Seal Extensions – District Wide

This tender was withdrawn. However, staff have managed to package work as separable portions into existing contracts. Contract 866 includes a variation to complete the Waihola package. Contract 860 includes variations A & B to complete the remaining sections of the 2023/24 Land Transport Programme.

4.9 Contract 791 – Bridge Renewals 106 & 112 – West Otago

The Contractor has poured the deck for Bridge 112, Ross Road and is completing approaches.



Bridge 106 Benny Road has been demolished and piles are being driven for the new structure.



4.10 Contract 862 – The Nuggets Road Slip Remediation

Work on this project has been completed now, **this project was delivered 2 months ahead of time and under budget.** We have the defects walk over scheduled next week, then all going to plan practical completion will be issued.



4.11 Contract 842 – Footpath Kerb and Channel Renewals

The tender was awarded to SouthRoads, works on Exmouth Street, Kaitangata have been completed, and contractors have started work on Tarata Street, Kaka Point. Everything is going as planned and work is scheduled to be completed by the end of May 2024.

5. 3 Waters

5.1 Contract 842 – Hub Pump Station

The Hub RMU installation is completed with the underground cabling, just need to replace one light pole on the State Highway 1, Clyde St, and Lanark St intersection. Delivery of the light will be delayed until end of May.

Four original light poles on the back of the Hub car park are kept in place until the new landscape project to ensure adequate lighting for health and safety.



5.2 Contract 841 - Hospital Creek Floodbank

Stage: Completed

Certificate of Final Completion was issued in November 2023. Contract 841 is completed. Working on the NEWA funding at this stage.

5.3 Contract 846 – Sewerage Treatment Plant Upgrade (Balclutha, Clinton, Waihola, Heriot & Kaitangata) – Contractor: Marshall Projects Ltd

Kaitangata update: Weekly sampling has been arranged to monitor the pond and plant performance post upgrade.

Heriot update: Weekly sampling has been arranged to monitor the pond and plant performance post upgrade.

Clinton update: Bioshells and screen are in operation. The UV is arriving NZ in May.

Waihola update: Bioshells are in operation. The screen is not operational yet. All pipework and ducting is installed. The main building has arrived on-site.



Balclutha update: Bioshell has been installed. All excavation work completed, ducting all installed and ready for cable installation. The next stage is to place the main building.



5.4 Contract 849 - Milton to Waihola Pipeline

The pipeline is now in the final stages of construction, with approximately 100 meters of pipe left to install. All railway crossings and state highway crossings have been completed. The crossing over the newly installed underpass near Waihola will be completed within the next two weeks, there was a slight delay due to needing NZTA sign off, however this has now been obtained. After construction, a final defects walkover will be completed and then practical completion for the project can be issued to the contractor.

All pipeline construction is expected to be completed by late April.



Bored Casing Pipes Ready for Pipeline Installation

Welded Pipe Sting Near Waihola

Commissioning of the pipeline from Milton Reservoir to the Waihola Township and Reservoir is planned to be completed by end of June. Once commissioned, discussions with the North Bruce Rural Water Scheme Committee will then need to occur to determine number of agreed connections into the pipeline.

5.5 Contract 850 - Greenfield Water Scheme

Southern Trenching Limited is making good progress on the installation of the pipeline and laying pipeline and all the testing will be completed by the end of April 2024 except the Lawerance PRV and last 100m of pipeline.

Although initial Geotech reports had been carried out prior to the commencement of the project, there has been issues with bedding materials and additional rock has been required to be removed than what had originally been planned. These additional costs have been covered within the contingency budget. However, it is estimated that we will now have project cost over runs due to this, final figures are being sourced to enable us to provide the councillors with clarity of what these budget over runs look like.



PE pipe being welded and Open pipe trench

5.6 Contract 865 - Greenfield and Milton to Waihola Pump Stations

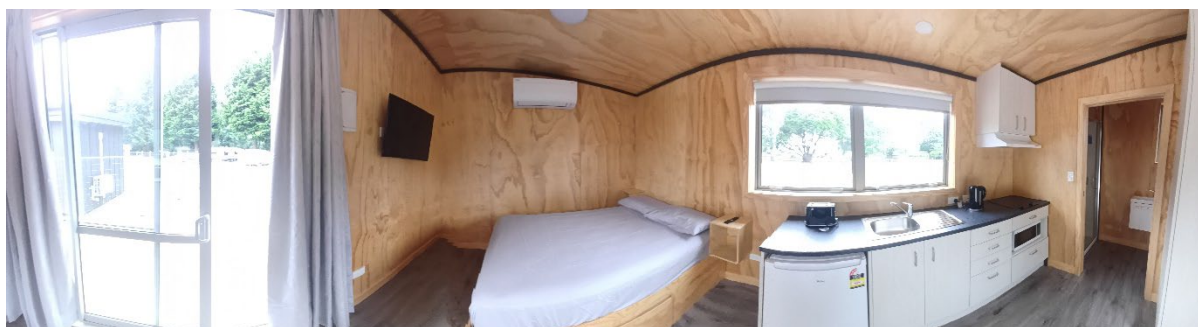
Cowley Electrical Dairy and Pumps and Rutter Civil are making good progress, work is ahead of schedule. Milburn pump station work is almost complete, Milton WTP VSD cables to pumps have been installed. The lower Greenfield pump station pump building is completed, and installation of the electrical unit and pumps are completed. Upper Greenfield pump station building is completed and we are installing the pump and electrical units in it. Crain road pump station building is almost complete as well with pump and electrical unit installation to be done in coming months.

5.7 Contract 864 – Paterson Creek - 3 Waters Upgrade and Renewals – Tapanui

Contract is completed and practical completion has been issued.

6 Taylor Park Cabins

One cabin has been operational since 15 January 2024 with a tenant moving into the cabin on 20 January 2024. There are currently four cabins on site. Cabin 5 and 6 is completed and stored at Otago Corrections Facility (OCF). OCF is currently constructing Cabins 7.



7 **Contract 845 - Milton Mainstreet Underground Utilities**

The Contractor has completed installing the stormwater line on the east side of Union Street and plans to move onto the wastewater renewal in Gray Street. A methodology and programme are being developed in preparation of the next phase - the electrical undergrounding.

8 **Contract 848 - Toshvale Community Housing Roof Replacement**

Stage: Completed

Certificate of Practical Completion was issued in November 2023. Contract 848 is on defect period. The contractor is working on Code Compliance Certificate.

9 **Contract 880 – Milton Community Pool/Library Hub Project**

Cost estimations for the detail design, and a number of items that had not originally been provided within the original estimated costs. With this knowledge, these updated values will be provided as a public excluded section within the Staff Submissions of the LTP process for council decision.

10 **Contract 863 – Reservoir Civil Construction – North Bruce, Puerua, Lawrence and Moa Flat**

North Bruce – Variation Inlet is in transit. Expected delivery end May.

Puerua – Concrete foundation has been completed and erection will begin late April.

Lawrence – Concrete foundation is scheduled for next week, pending pre-pour inspection by engineer.

Moa Flat – Concrete foundation completed, tank is scheduled for erecting in May.

11 **Contract 883 – Mt Cooe Leachate Pump Station and Owaka Wastewater Pump Station**

The Contract was awarded to Isaac Construction, prestart meeting will be next week Tuesday 16 April 2024.

12 Contract 882 – Professional Services Contract

After a 12-month procurement process, we are delighted to advise that the Professional Services Contract has now been awarded, and the Panel of Professional Service Providers are:

BECA	Anchor Consultants
Fluent Solutions	Support Consultants
GHD	Support Consultants
Stantec	Support Consultants
Bonisch	Support Consultants

A full breakdown of the process can be provided as a public excluded document (due to commercial sensitivity) if requested.

Infrastructure Strategy & Operations Committee

Item for INFORMATION

Report	Compliance Update Report
Meeting Date	24 April 2024
Item Number	5
Prepared By	Keiran Medel – Senior Compliance Engineer Daniel Pickup – Team Leader Compliance and Reporting
File Reference	888397

REPORT SUMMARY

This report provides an update on all compliance-related issues across the Three Waters Operations department. It includes information that was previously provided in both the Operations and Infrastructure Strategy reports as well as additional specific information on compliance activities.

RECOMMENDATIONS

- 1 That the Infrastructure Strategy & Operations Committee receives the ‘Compliance Update’ report dated 24 April 2024.**

REPORT

1 Water Treatment Plant (WTP) Compliance Focus

1.1 Drinking Water Quality Assurance Rules (DWQAR) Compliance Summary

Since the implementation of the DWQARs in November 2022, several of the Councils WTPs and distribution networks were identified, through routine sample analysis and monitoring, as having inadequate treatment processes, resulting in the supply of non-compliant drinking water to those consumers. Refer to Appendix A for an overview of the DWQARs that are not currently met by the WTPs and distribution networks subject to a Boil Water Notice (BWN) or Advisory Notice.

Monthly Compliance achieved / anticipated	Technical Non-compliance	Moderate Non-compliance	Significant Non-compliance
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Balclutha WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.4 UV Treatment	90%	93%	100%	100%	100%	100%
T3 Proto: 4.10.2.5 Filters T3 Proto: 4.10.2.13 UV Treatment	90%	100%	97%	97%	93%	100%
D3 Bacto Balclutha: 4.11.4 Residual Disinfection	100%	100%	100%	100%	100%	100%
Compliance Comments						

Milton WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	87%	97%	97%	94%	100%	94%
T3 Proto: 4.10.2.11 Membranes	16%	97%	74%	80%	52%	97%
D3 Bacto Milton: 4.11.4 Residual Disinfection	0%	100%	100%	100%	100%	100%
D3 Bacto OCF: 4.11.4 Residual Disinfection	100%	100%	100%	100%	TNC	100%
Compliance Comments	T3 Proto non-compliance when Integrity Tests are not completed every 24 hours. D3 Bacto TNC when the FAC in the distribution network is less than 0.1 mg/L.					

Stirling WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.4 UV Treatment	97%	100%	97%	94%	93%	97%
T3 Proto: 4.10.2.5 Filters T3 Proto: 4.10.2.13 UV Treatment	100%	100%	100%	100%	100%	100%
D3 Bacto Stirling: 4.11.4 Residual Disinfection	100%	100%	92%	100%	100%	100%
D3 Bacto South Bruce: 4.11.4 Residual Disinfection	100%	100%	92%	100%	100%	100%
Compliance Comments	Minor UV Treatment Non-compliances impacted Bacto treatment					

Kaitangata WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	100%	100%	100%	100%	97%	100%
T3 Bacto: 4.10.1.4 UV Treatment	100%	100%	100%	97%	100%	100%
T3 Proto: 4.10.2.5 Filters T3 Proto: 4.10.2.13 UV Treatment	81%	83%	94%	97%	93%	100%
D3 Bacto Kaitangata: 4.11.4 Residual Disinfection	100%	100%	100%	100%	100%	100%
D3 Bacto Wangaloa: 4.11.4 Residual Disinfection	100%	100%	92%	100%	100%	100%
Compliance Comments						

Whitelea Rd WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	36%	47%	36%	0%	17%	39%
T3 Proto: 4.10.2.11 Membranes	94%	97%	100%	84%	93%	100%
D3 Bacto North Richardson: 4.11.4 Residual Disinfection	100%	100%	92%	100%	100%	100%
Compliance Comments	T3 Bacto is not achieved due to insufficient storage in the Contact Tank. T3 Proto non-compliance when 0.1 NTU is exceeded.					

Puerua WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.4 UV Treatment	0%	0%	26%	87%	100%	97%
T3 Proto: 4.10.2.13 UV Treatment	32%	0%	39%	81%	97%	97%
D3 Bacto Richardson South: 4.11.4 Residual Disinfection	100%	77%	85%	100%	100%	100%
D3 Bacto Kaka Point: 4.11.4 Residual Disinfection	39%	0%	43%	82%	100%	100%
Compliance Comments	UV Treatment capable of achieving 4 Log Proto Disinfection					
	UV Treatment capable of achieving Bacto Compliance					

Owaka WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.4 UV Treatment	90%	100%	97%	90%	83%	94%
T3 Proto: 4.10.2.13 UV Treatment	TNC	TNC	97%	100%	86%	87%
D3 Bacto Owaka: 4.11.4 Residual Disinfection	100%	100%	100%	100%	100%	100%
Compliance Comments	T3 Bacto non-compliance when UV Dose is less than 40mJ/cm2.					
	T3 Proto non-compliance when the UVT is less than the validated limit.					

Clydevale-Pomahaka WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.4 UV Treatment	100%	97%	100%	100%	100%	100%
T3 Proto: 4.10.2.13 UV Treatment	100%	97%	100%	100%	93%	97%
D3 Bacto Clydevale: 4.11.4 Residual Disinfection	100%	100%	100%	100%	100%	100%
D3 Bacto Clinton: 4.11.4 Residual Disinfection	100%	100%	100%	100%	100%	100%
Compliance Comments	T3 Proto non-compliance when UVT drops below 80% of the validated limit.					

Glenkenich WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	68%	57%	48%	65%	100%	97%
T3 Proto: 4.10.2.11 Membranes	94%	80%	68%	42%	83%	71%
D3 Bacto Glenkenich: 4.11.4 Residual Disinfection	100%	80%	71%	82%	84%	100%
Compliance Comments	T3 Bacto non-compliance when Turbidity > 1.0NTU.					
	T3 Proto non-compliance when Turbidity exceeds the Rule Limits.					

Lawrence WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T2 Bacto: FAC Disinfection	32%	100%	91%	96%	64%	86%
T2 Bacto: UV Disinfection	100%	63%	89%	67%	79%	77%
T2 Proto: UV Disinfection	100%	63%	89%	74%	79%	77%
T3 Proto: Filters	71%	57%	71%	77%	69%	81%
D2 Bacto Lawrence	100%	100%	100%	100%	79%	86%
Compliance Comments	T2 Bacto non-compliance when FAC drops below the required 0.5mg/L.					
	D2 Bacto non-compliance when FAC levels in the distribution are <0.2mg/L.					
	T3 Proto non-compliance when Turbidity exceeds 0.3 NTU.					
	UV Disinfection not consistently above the required dose and UVT.					

Tapanui WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	94%	80%	97%	100%	100%	100%
T3 Proto: 4.10.2.5 Filters	84%	50%	87%	90%	66%	52%
D3 Bacto Tapanui: 4.11.4 Residual Disinfection	100%	100%	100%	100%	100%	100%
Compliance Comments	Installation of UV Treatment at this site will improve Bacto and Proto compliance.					

Tuapeka West WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T2 Bacto: FAC Disinfection	77%	100%	80%	100%	89%	89%
T2 Proto: Filters	0%	0%	0%	0%	0%	0%
D2 Bacto Tuapeka West	100%	100%	0%	100%	100%	88%
Compliance Comments	This site will be replaced by Greenfield Rural Scheme.					
	There is no protozoal treatment at this site.					

North Bruce WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	29%	0%	0%	0%	0%	0%
T3 Bacto: 4.10.1.4 UV Treatment	48%	0%	23%	0%	24%	68%
T3 Proto: 4.10.2.5 Filters	0%	0%	0%	0%	0%	52%
T3 Proto: 4.10.2.13 UV Treatment	0%	0%	0%	0%	0%	52%
D3 Bacto North Bruce: 4.11.4 Residual Disinfection	100%	82%	49%	78%	97%	100%
D3 Bacto Waihola: 4.11.4 Residual Disinfection	100%	0%	89%	56%	87%	93%
Compliance Comments	New reservoir to be installed to help improve Bacto compliance.					
	UV Reactor validated to achieve 4 Log Proto treatment.					

Moa Flat WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	0%	0%	0%	0%	90%	84%
T3 Bacto: 4.10.1.4 UV Treatment	0%	0%	7%	7%	28%	87%
T3 Proto: 4.10.2.5 Filters	0%	0%	0%	0%	17%	68%
T3 Proto: 4.10.2.13 UV Treatment	0%	0%	0%	0%	17%	68%
D3 Bacto Moa Flat: 4.11.4 Residual Disinfection	100%	100%	100%	100%	97%	100%
Compliance Comments	UV Reactor validated to achieve 4 Log Proto treatment.					

Waitahuna WTP	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
T3 Bacto: 4.10.1.1 FAC Disinfection	0%	0%	0%	0%	0%	0%
T3 Proto: 4.10.2.5 Filters	0%	0%	0%	0%	0%	0%
D3 Bacto Balmoral 1: 4.11.4 Residual Disinfection	TNC	0%	0%	0%	5%	TNC
D3 Bacto Balmoral 2: 4.11.4 Residual Disinfection	TNC	0%	0%	0%	5%	0%
D3 Bacto Tuapeka East: 4.11.4 Residual Disinfection	TNC	0%	0%	0%	5%	TNC
Compliance Comments	D3 Bacto TNC when the FAC in the distribution network is less than 0.1 mg/L.					
	D3 Bacto 0% compliance when E. coli detected in the distribution.					
	This site will be replaced by Greenfield Rural Scheme.					

1.2 Boil Water and Conserve Water Notices

Tuapeka West remains on a BWN due to inadequate treatment at the plant and inconsistent chlorine levels in the reticulation. The BWN will not be lifted without considerable upgrades as there is currently no protozoal treatment at this site. This is the only site that has no protozoal treatment. The Greenfield Rural Water Scheme will replace the Tuapeka West WTP at the end of 2024.

1.3 Boil Water and Aluminium Advisory Notices

North Bruce and Waihola will remain on a BWN until the treatment plant demonstrates compliance with Sections 4.10.1.1, 4.10.1.4, and 4.10.2.13 and the distribution networks demonstrate compliance with the D3 Rules. The plant does not demonstrate the consistent compliance required to lift the BWN.

- The treatment plant struggles to achieve the required contact time, turbidity levels, and UV Dose to provide assurance that the bacteria in the water has been adequately disinfected with chlorine and UV Light.
- The treatment plant struggles to achieve the required UV Dose required to provide assurance that protozoa in the water has been adequately disinfected by the UV treatment process.
- Low levels of residual chlorine detected in the distribution network prevents compliance with the D3 Rules.

E. coli was not detected in the North Bruce distribution zone during the past eight weeks of monitoring, demonstrating compliance with Rule D3.29. One FAC result analysed was below the minimum requirement of 0.2 mg/l during the past eight weeks of monitoring, failing to comply with Rule D3.19.

E. coli was not detected in the Waihola distribution zone during the past eight weeks of monitoring, demonstrating compliance with Rule D3.29. Six FAC results analysed were below the required 0.2 mg/l during the past eight weeks of monitoring, failing to comply with Rule D3.19.

Eleven aluminium results analysed from the Waihola distribution network were above the MAV of 1 mg/l during the past eight weeks of monitoring, the most recent non-compliant residual detected on 27 March 2024.

Eleven aluminium results analysed from the North Bruce distribution network were above the MAV of 1 mg/l during the past eight weeks of monitoring, the most recent non-compliant residual detected on 27 March 2024.

One aluminium result analysed at the North Bruce WTP was above the MAV of 1 mg/l during the past eight weeks of monitoring, the most recent non-compliant residual detected on 11 February 2024. An elevated sampling programme will remain in place while the analysed results are above the MAV.

North Bruce WTP	Total Aluminium	E. coli	FAC
Samples Collected in the past eight weeks	20	17	17
Compliant Samples collected in the past eight weeks	19	17	17

Waiholo Distribution Network	Total Aluminium	E. coli	FAC
Samples Collected in the past eight weeks	42	46	59
Compliant Samples collected in the past eight weeks	31	46	53

North Bruce Distribution Network	Total Aluminium	E. coli	FAC
Samples Collected in the past eight weeks	42	42	59
Compliant Samples collected in the past eight weeks	31	42	58

Water Treatment - North Bruce WTP

Treated Water Compliance Report for March 2024

Section 4.10.1.1: Bacterial Rules - Water Disinfected with Chlorine						
Rule:		T3.2	T3.3	T3.4	T3.5	T3.6
	Requirement:	% of day C.t value is at least 15 min.mg/L	% of day FACe is ≥ 0.2mg/L	Minimum T ¹⁰ contact time	% of day where the turbidity of water leaving WTP is < 1.0 NTU	>2.0 NTU for 15 consecutive minutes or more (total time)
Date	Plant Run Time	95%	95%	5	95%	0
1/03/2024	1440	100.0%	100%	14	73.0%	0
2/03/2024	1440	66.6%	100%	0	67.4%	0
3/03/2024	1433	81.6%	100%	1	44.5%	38
4/03/2024	1440	99.5%	100%	31	54.2%	24
5/03/2024	1440	100.0%	100%	50	63.9%	0
6/03/2024	1440	100.0%	100%	30	66.0%	0
7/03/2024	1440	100.0%	100%	32	65.0%	0
8/03/2024	1440	100.0%	100%	36	56.8%	0
9/03/2024	1440	100.0%	100%	33	66.7%	0
10/03/2024	1440	100.0%	100%	17	63.7%	0
11/03/2024	1440	100.0%	100%	19	67.5%	57
12/03/2024	1440	100.0%	100%	34	85.6%	0
13/03/2024	1440	100.0%	100%	35	92.8%	0
14/03/2024	1440	100.0%	100%	19	94.6%	0
15/03/2024	1429	100.0%	100%	26	86.8%	0
16/03/2024	1440	100.0%	100%	23	83.7%	0
17/03/2024	1440	100.0%	100%	27	54.9%	0
18/03/2024	1440	100.0%	100%	33	54.2%	0
19/03/2024	1431	98.3%	100%	17	34.3%	225
20/03/2024	1440	100.0%	100%	27	18.0%	640
21/03/2024	1440	100.0%	100%	35	23.3%	230
22/03/2024	1440	100.0%	100%	36	57.0%	8
23/03/2024	1440	100.0%	100%	40	63.8%	0
24/03/2024	1438	100.0%	100%	41	42.5%	0
25/03/2024	1440	100.0%	100%	15	52.7%	102
26/03/2024	1440	100.0%	100%	33	53.1%	0
27/03/2024	1440	100.0%	100%	46	76.7%	0
28/03/2024	1433	100.0%	100%	52	74.0%	0
29/03/2024	1440	100.0%	100%	53	21.5%	256
30/03/2024	1440	100.0%	100%	42	0.0%	792
31/03/2024	1440	100%	100%	46	0.0%	1440
Number of Days that were Compliant:		29	31	29	0	20
Operator / Supplier Comments:						

Section 4.10.1.4: Bacterial Rules - Water Disinfected with Ultraviolet Light						
Rule:		T3.15	T3.16	T3.17	T3.18	
Requirement:	Plant Run Time	UV Reactor 1 Run Time	% of day flow rate within validated range	% of the day where a Reduction Equivalent Dose (RED) of at least 40mJ/cm ² (or equivalent) was achieved	# consecutive 15 min periods where the RED UV dose was less than 40 mJ/cm ²	>5.0 NTU for 15 consecutive minutes or more (total time)
Date	min/day	min/day	95%	95%	0	0
1/03/2024	1440	1327	100.0%	100.0%	0	0
2/03/2024	1440	1376	100.0%	100.0%	0	0
3/03/2024	1433	1388	100.0%	100.0%	0	0
4/03/2024	1440	1378	100.0%	99.7%	0	0
5/03/2024	1440	1311	100.0%	100.0%	0	0
6/03/2024	1440	1337	100.0%	100.0%	0	0
7/03/2024	1440	1352	100.0%	100.0%	0	0
8/03/2024	1440	1336	100.0%	100.0%	0	0
9/03/2024	1440	1335	100.0%	100.0%	0	0
10/03/2024	1440	1376	100.0%	100.0%	0	0
11/03/2024	1440	1386	100.0%	98.7%	4	0
12/03/2024	1440	1400	100.0%	100.0%	0	0
13/03/2024	1440	1392	100.0%	100.0%	0	0
14/03/2024	1440	1347	100.0%	99.9%	0	0
15/03/2024	1429	1384	100.0%	100.0%	0	0
16/03/2024	1440	1383	100.0%	100.0%	0	0
17/03/2024	1440	1400	100.0%	99.3%	0	0
18/03/2024	1440	1341	100.0%	97.8%	15	0
19/03/2024	1431	1276	100.0%	82.8%	164	0
20/03/2024	1440	1393	100.0%	50.8%	630	0
21/03/2024	1440	1385	100.0%	72.0%	318	0
22/03/2024	1440	1360	100.0%	89.2%	119	0
23/03/2024	1440	1352	100.0%	100.0%	0	0
24/03/2024	1438	1394	100.0%	100.0%	0	0
25/03/2024	1440	1280	100.0%	91.3%	94	0
26/03/2024	1440	1400	100.0%	100.0%	0	0
27/03/2024	1440	1335	100.0%	100.0%	0	0
28/03/2024	1433	1394	100.0%	100.0%	0	0
29/03/2024	1440	1388	100.0%	98.1%	6	0
30/03/2024	1440	1337	100.0%	97.5%	13	0
31/03/2024	1440	1417	100.0%	70.1%	327	0
Number of Days that were Compliant:			31	25	21	31
Operator / Supplier Comments:						

Section 4.10.2.13: Protozoal Rules - Ultraviolet Light					
T3.85	T3.86	T3.87	T3.88	T3.89	T3.90
% of the day flow rate within validated range	% of day UV dose met log credit requirement	# consecutive 15 min periods where UV dose < log credit requirement	# consecutive 15 min periods where NTU exceeded 5.0	% of day where UVT is ≥ 95% of lowest UVT validated	<80% of lowest validated UVT for 15 consecutive minutes or more (total time)
95%	95%	0	0	95%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	99.5%	0	0	100.0%	0
100.0%	91.5%	0	0	97.3%	0
100.0%	98.8%	0	0	99.1%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	93.3%	0	0	99.5%	0
100.0%	94.5%	0	0	100.0%	0
100.0%	97.8%	0	0	100.0%	0
100.0%	99.5%	0	0	100.0%	0
100.0%	96.7%	0	0	100.0%	0
100.0%	92.8%	4	0	100.0%	0
100.0%	99.5%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	97.3%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	99.3%	0	0	99.6%	0
100.0%	97.4%	15	0	100.0%	0
100.0%	63.0%	164	0	100.0%	0
100.0%	15.5%	630	0	98.9%	0
100.0%	17.5%	318	0	100.0%	0
100.0%	50.7%	119	0	100.0%	0
100.0%	82.9%	0	0	100.0%	0
100.0%	98.1%	0	0	100.0%	0
100.0%	84.1%	94	0	100.0%	0
100.0%	98.0%	0	0	98.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	86.2%	6	0	100.0%	0
100.0%	51.8%	13	0	100.0%	0
100.0%	22.1%	327	0	95.1%	0
31	18	21	31	31	31
Operator / Supplier Comments:					

Moa Flat will remain on a BWN until the treatment plant demonstrates compliance with Sections 4.10.1.1, 4.10.1.4, and 4.10.2.13 and the distribution network demonstrates compliance with the D3 Rules. The plant does not demonstrate the consistent compliance required to lift the BWN.

- The treatment plant does not consistently achieve the required C.t. Value, turbidity levels, and UV Dose to provide assurance that the bacteria in the water has been adequately disinfected with chlorine and UV Light.
- The treatment plant struggles to achieve the required UV Dose to provide assurance that protozoa in the water has been adequately removed by the UV Disinfection process.

E. coli was not detected in the Moa Flat distribution network during the past eight weeks of monitoring, demonstrating compliance with Rule D3.29. All FAC results analysed were above the minimum requirement of 0.2 mg/l during the past eight weeks of monitoring, complying with Rule D3.19.

One aluminium result analysed from the Moa Flat WTP was above the MAV of 1 mg/l during the past eight weeks of monitoring. The AI Advisory notice was reissued on 27 March 2024 following the recent non-compliant aluminium result. An elevated sampling programme will remain in place while the analysed results are above the MAV.

Moa Flat WTP	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	4	0	1
Compliant Samples collected in the past eight weeks	3	0	1

Moa Flat Distribution Network	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	9	8	25
Compliant Samples collected in the past eight weeks	9	8	25

Water Treatment - Moa Flat WTP

Treated Water Compliance Report for March 2024

Section 4.10.1.1: Bacterial Rules - Water Disinfected with Chlorine						
Rule:		T3.2	T3.3	T3.4	T3.5	T3.6
	Requirement: Plant Run Time	% of day C.t value is at least 15 min.mg/L	% of day FACe is \geq 0.2mg/L	Minimum T ¹⁰ contact time	% of day where the turbidity of water leaving WTP is < 1.0 NTU	>2.0 NTU for 15 consecutive minutes or more (total time)
Date	min/day	95%	95%	5	95%	0
1/03/2024	1406	99.3%	100%	13	96.4%	0
2/03/2024	1376	96.7%	100%	12	84.3%	0
3/03/2024	1407	100.0%	100%	12	99.3%	0
4/03/2024	1414	99.2%	100%	14	99.8%	0
5/03/2024	1381	93.1%	100%	16	100.0%	0
6/03/2024	1423	99.3%	100%	16	99.9%	0
7/03/2024	1372	99.6%	100%	15	99.9%	0
8/03/2024	1385	100.0%	100%	20	100.0%	0
9/03/2024	1403	100.0%	100%	14	99.7%	0
10/03/2024	1254	97.1%	100%	16	100.0%	0
11/03/2024	1329	89.8%	99%	9	99.8%	0
12/03/2024	1411	100.0%	100%	15	100.0%	0
13/03/2024	1383	100.0%	100%	15	100.0%	0
14/03/2024	1418	95.3%	99%	16	99.8%	0
15/03/2024	1406	100.0%	100%	17	100.0%	0
16/03/2024	1407	98.5%	100%	16	100.0%	0
17/03/2024	1344	99.3%	100%	17	100.0%	0
18/03/2024	1395	100.0%	100%	17	99.8%	0
19/03/2024	1356	99.0%	100%	16	100.0%	0
20/03/2024	1388	97.0%	100%	15	100.0%	0
21/03/2024	1386	98.9%	100%	15	99.4%	0
22/03/2024	1356	97.6%	100%	15	98.1%	0
23/03/2024	1410	99.3%	100%	16	85.2%	0
24/03/2024	1410	100.0%	100%	16	100.0%	0
25/03/2024	1385	99.3%	100%	16	100.0%	0
26/03/2024	1384	98.8%	100%	15	100.0%	0
27/03/2024	1299	97.3%	100%	14	100.0%	0
28/03/2024	1313	92.3%	100%	17	99.8%	0
29/03/2024	1410	95.0%	100%	16	100.0%	0
30/03/2024	1410	99.3%	100%	17	100.0%	0
31/03/2024	1410	100%	100%	18	100.0%	0
Number of Days that were Compliant:		28	31	31	29	31
Operator / Supplier Comments:						

Section 4.10.1.4: Bacterial Rules - Water Disinfected with Ultraviolet Light						
Rule:		T3.15	T3.16	T3.17	T3.18	
	Requirement:	UV Reactor 1 Run Time	% of day flow rate within validated range	% of the day where a Reduction Equivalent Dose (RED) of at least 40mJ/cm ² (or equivalent) was achieved	<40 mJ/cm ² for 15 consecutive minutes or more (total time)	>5.0 NTU for 15 consecutive minutes or more (total time)
Date	min/day	min/day	95%	95%	0	0
1/03/2024	1406	1406	97.9%	100.0%	0	0
2/03/2024	1376	1376	98.9%	100.0%	0	0
3/03/2024	1407	1407	100.0%	99.5%	0	0
4/03/2024	1414	1414	98.9%	98.4%	0	0
5/03/2024	1381	1381	98.8%	100.0%	0	0
6/03/2024	1423	1423	97.6%	100.0%	0	0
7/03/2024	1372	1372	100.0%	99.5%	0	0
8/03/2024	1385	1385	100.0%	100.0%	0	0
9/03/2024	1403	1403	97.9%	100.0%	0	0
10/03/2024	1254	1254	98.8%	99.9%	0	0
11/03/2024	1329	1329	94.4%	100.0%	0	0
12/03/2024	1411	1411	100.0%	98.8%	0	0
13/03/2024	1383	1383	100.0%	100.0%	0	0
14/03/2024	1418	1418	100.0%	100.0%	0	0
15/03/2024	1406	1406	100.0%	100.0%	0	0
16/03/2024	1407	1407	100.0%	100.0%	0	0
17/03/2024	1344	1344	100.0%	99.9%	0	0
18/03/2024	1395	1395	100.0%	100.0%	0	0
19/03/2024	1356	1356	100.0%	100.0%	0	0
20/03/2024	1388	1388	100.0%	99.1%	0	0
21/03/2024	1386	1386	100.0%	99.4%	0	0
22/03/2024	1356	1356	98.9%	100.0%	0	0
23/03/2024	1410	1410	100.0%	98.6%	6	0
24/03/2024	1410	1410	100.0%	95.4%	25	0
25/03/2024	1385	1385	97.8%	99.1%	0	0
26/03/2024	1384	1384	100.0%	99.0%	0	0
27/03/2024	1299	1299	100.0%	99.1%	0	0
28/03/2024	1313	1313	100.0%	97.9%	10	0
29/03/2024	1410	1410	100.0%	99.0%	0	0
30/03/2024	1410	1410	98.9%	100.0%	0	0
31/03/2024	1410	1410	100.0%	100.0%	0	0
Number of Days that were Compliant:			30	31	28	31

Section 4.10.2.13: Protozoal Rules - Ultraviolet Light					
T3.85	T3.86	T3.87	T3.88	T3.89	T3.90
% of the day flow rate within validated range	% of day UV dose met log credit requirement	< log credit requirement for 15 consecutive minutes or more (total time)	>5.0 NTU for 15 consecutive minutes or more (total time)	% of day where UVT is ≥ 95% of lowest UVT validated	<80% of lowest validated UVT for 15 consecutive minutes or more (total time)
95%	95%	0	0	95%	0
97.9%	57.1%	0	0	100.0%	0
98.9%	67.3%	0	0	100.0%	0
100.0%	97.8%	0	0	100.0%	0
98.9%	97.2%	0	0	97.2%	0
98.8%	99.3%	0	0	99.3%	0
97.6%	100.0%	0	0	100.0%	0
100.0%	99.5%	0	0	100.0%	0
100.0%	97.9%	0	0	100.0%	0
97.9%	99.6%	0	0	100.0%	0
98.8%	97.3%	0	0	100.0%	0
94.4%	98.3%	0	0	100.0%	0
100.0%	98.8%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	99.9%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
100.0%	88.1%	0	0	100.0%	0
100.0%	91.8%	0	0	100.0%	0
100.0%	79.4%	0	0	100.0%	0
98.9%	98.6%	0	0	100.0%	0
100.0%	88.4%	6	0	100.0%	0
100.0%	83.8%	25	0	100.0%	0
97.8%	94.9%	0	0	100.0%	0
100.0%	99.0%	0	0	100.0%	0
100.0%	98.9%	0	0	100.0%	0
100.0%	97.9%	10	0	100.0%	0
100.0%	98.8%	0	0	100.0%	0
98.9%	97.3%	0	0	100.0%	0
100.0%	100.0%	0	0	100.0%	0
30	23	28	31	31	31

Notes

Waitahuna will remain on a BWN until the treatment plant demonstrates compliance with Sections 4.10.1.1, and 4.10.2.5 and the distribution networks demonstrate compliance with the D3 Rules. The plant does not demonstrate the consistent compliance required to lift the BWN.

- The treatment plant struggles to achieve the required contact time, turbidity levels, and FACe dose to provide assurance that the bacteria in the water has been adequately disinfected with chlorine.
- The treatment plant struggles to achieve the required turbidity levels to provide assurance that protozoa in the water has been adequately removed by the coagulation, flocculation, sedimentation, and filtration process.
- Low levels of residual chlorine detected in the three distribution networks limits compliance with Rule D3.19.
- The detection of *E. coli* in the three distribution networks prevents compliance with Rule D3.29.

E. coli was detected in one sample collected from the Waitahuna WTP during the past eight weeks of monitoring. Two FAC results analysed were below the minimum requirement of 0.2 mg/l during the past eight weeks of monitoring.

E. coli was detected in four samples collected from the Tuapeka East distribution network during the past eight weeks of monitoring, failing to comply with Rule D3.29. Of the 40 FAC samples analysed 22 were below the minimum requirement of 0.2 mg/l during the past eight weeks of monitoring, failing to comply with Rule D3.19.

E. coli was detected in one sample collected from the Balmoral 1 distribution network during the past eight weeks of monitoring, failing to comply with Rule D3.29. Of the 35 FAC samples analysed 19 were below the minimum requirement of 0.2 mg/l during the past eight weeks of monitoring, failing to comply with Rule D3.19.

E. coli was detected in two samples collected from the Balmoral 2 distribution network during the past eight weeks of monitoring, failing to comply with Rule D3.29. Of the 41 FAC samples analysed 24 were below the requirement of 0.2 mg/l during the past eight weeks of monitoring, failing to comply with Rule D3.19.

One aluminium result analysed from the Tuapeka East distribution network and one aluminium result analysed from the WTP was above the MAV of 1 mg/l during the past eight weeks of monitoring. An elevated sampling programme will remain in place while the analysed results are above the MAV.

Waitahuna WTP	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	5	16	19
Compliant Samples collected in the past eight weeks	4	15	17

Balmoral 1 Distribution Network	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	10	28	35
Compliant Samples collected in the past eight weeks	10	27	16

Balmoral 2 Distribution Network	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	12	31	41
Compliant Samples collected in the past eight weeks	12	29	17

Tuapeka East Distribution Network	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	11	31	40
Compliant Samples collected in the past eight weeks	10	27	18

Water Treatment - Waitahuna WTP

Treated Water Compliance Report for March 2024

Section 4.10.1.1: Bacterial Rules - Water Disinfected with Chlorine						
Rule:		T3.2	T3.3	T3.4	T3.5	T3.6
	Requirement: Plant Run Time	% of day C.t value is at least 15 min.mg/L	% of day FACe is \geq 0.2mg/L	Minimum T ¹⁰ contact time	% of day where the turbidity of water leaving WTP is < 1.0 NTU	>2.0 NTU for 15 consecutive minutes or more (total time)
Date	min/day	95%	95%	5	95%	0
1/03/2024	1339	73.3%	100%	2	0.0%	9
2/03/2024	1193	87.3%	100%	2	13.7%	0
3/03/2024	1270	79.3%	100%	2	0.0%	0
4/03/2024	1051	83.6%	98%	2	23.7%	0
5/03/2024	1075	72.2%	100%	2	12.8%	0
6/03/2024	1121	62.9%	100%	1	0.0%	5
7/03/2024	1263	62.5%	100%	1	0.0%	12
8/03/2024	1037	47.6%	100%	2	5.6%	0
9/03/2024	1286	73.0%	100%	2	0.0%	0
10/03/2024	1087	69.8%	100%	2	12.5%	0
11/03/2024	1215	81.5%	100%	2	83.5%	0
12/03/2024	1164	70.2%	100%	1	100.0%	0
13/03/2024	1139	81.3%	100%	2	100.0%	0
14/03/2024	1170	79.7%	100%	2	96.8%	0
15/03/2024	1120	66.6%	100%	2	100.0%	0
16/03/2024	1041	75.1%	100%	2	100.0%	0
17/03/2024	931	87.0%	100%	2	99.6%	0
18/03/2024	1123	68.7%	100%	2	21.8%	0
19/03/2024	883	56.7%	99%	2	12.5%	391
20/03/2024	1062	69.9%	100%	2	6.1%	796
21/03/2024	1110	34.4%	100%	2	0.0%	898
22/03/2024	946	69.5%	100%	2	17.4%	14
23/03/2024	1050	72.0%	99%	2	0.0%	0
24/03/2024	1251	85.2%	100%	2	26.4%	0
25/03/2024	903	84.3%	100%	2	99.8%	0
26/03/2024	1086	70.3%	100%	3	94.1%	0
27/03/2024	924	77.5%	100%	2	96.2%	0
28/03/2024	972	80.1%	100%	2	44.8%	0
29/03/2024	811	33.3%	100%	2	9.1%	450
30/03/2024	978	76.4%	100%	2	13.5%	593
31/03/2024	899	27%	100%	2	0.0%	563
Number of Days that were Compliant:		0	31	0	8	21
Operator / Supplier Comments:						

Water Treatment - Waitahuna WTP

Treated Water Compliance Report for March 2024

Section 4.10.2.5: Protozoal Rules - Coagulation, Flocculation, Sedimentation, and Filtration

Rule:			Filter 1					
	Plant Run Time	Filter 1 Run Time	T3.39	T3.40	T3.43	T3.44	T3.47	T3.48
Date	min/day	min/day	% of day where turbidity was <= 0.3 NTU	>0.5 NTU for 15 consecutive minutes or more (total time)	% of day where turbidity was <= 0.15 NTU	>0.5 NTU for 15 consecutive minutes or more (total time)	% of day where turbidity was <= 0.1 NTU	>0.3 NTU for 15 consecutive minutes or more (total time)
			95%	0	95%	0	95%	0
1/03/2024	1339	1339	0.0%	1221	0.0%	1221	0.0%	1221
2/03/2024	1193	1193	0.0%	970	0.0%	970	0.0%	1032
3/03/2024	1270	1270	0.0%	1172	0.0%	1172	0.0%	1172
4/03/2024	1051	1051	0.0%	809	0.0%	809	0.0%	911
5/03/2024	1075	1075	0.0%	781	0.0%	781	0.0%	804
6/03/2024	1121	1121	0.0%	846	0.0%	846	0.0%	846
7/03/2024	1263	1263	0.0%	1040	0.0%	1040	0.0%	1040
8/03/2024	1037	1037	0.0%	687	0.0%	687	0.0%	687
9/03/2024	1286	1286	0.0%	1132	0.0%	1132	0.0%	1132
10/03/2024	1087	1087	0.0%	752	0.0%	752	0.0%	752
11/03/2024	1215	1215	0.0%	1003	0.0%	1003	0.0%	1003
12/03/2024	1164	1164	0.0%	877	0.0%	877	0.0%	940
13/03/2024	1139	1139	7.2%	604	0.0%	604	0.0%	901
14/03/2024	1170	1170	0.0%	448	0.0%	448	0.0%	960
15/03/2024	1120	1120	0.0%	346	0.0%	346	0.0%	813
16/03/2024	1041	1041	7.0%	484	0.8%	484	0.0%	781
17/03/2024	931	931	21.2%	482	4.6%	482	0.0%	584
18/03/2024	1123	1123	0.0%	885	0.0%	885	0.0%	885
19/03/2024	883	883	6.6%	546	0.1%	546	0.0%	547
20/03/2024	1062	1062	3.8%	870	0.1%	870	0.0%	876
21/03/2024	1110	1110	0.0%	898	0.0%	898	0.0%	898
22/03/2024	946	946	6.6%	692	0.2%	692	0.0%	716
23/03/2024	1050	1050	0.0%	868	0.0%	868	0.0%	868
24/03/2024	1251	1251	0.0%	1139	0.0%	1139	0.0%	1139
25/03/2024	903	903	21.6%	372	0.1%	372	0.0%	550
26/03/2024	1086	1086	0.0%	876	0.0%	876	0.0%	876
27/03/2024	924	924	14.8%	531	1.9%	531	0.0%	586
28/03/2024	972	972	9.2%	703	0.1%	703	0.0%	733
29/03/2024	811	811	4.9%	553	0.0%	553	0.0%	559
30/03/2024	978	978	2.4%	695	0.0%	695	0.0%	728
31/03/2024	899	899	0.0%	563	0.0%	563	0.0%	563
Number of Days that were Compliant			0	0	0	0	0	0
Operator / Supplier Comments:								

Lawrence will remain on a BWN until the treatment plant demonstrates compliance with the T2 Treatment Rules, and Section 4.10.2.5 and the distribution network demonstrate compliance with the D2 Rules. The plant does not demonstrate the consistent compliance required to lift the BWN.

- The treatment plant struggles to consistently maintain the required FAC residual and pH levels to provide assurance that the bacteria in the water has been adequately disinfected with chlorine.
- The treatment plant struggles to consistently achieve the required UVT and UV Dose to provide assurance that the bacteria and protozoa in the water has been adequately disinfected with UV Light.
- The treatment plant struggles to consistently achieve the required turbidity levels to provide assurance that protozoa in the water has been adequately removed by the coagulation, flocculation, sedimentation, and filtration process.
- Low levels of residual chlorine detected in the distribution network limits compliance with Rule D3.19.

E. coli was not detected at the Lawrence WTP during the past eight weeks of monitoring. Ten FAC results analysed were below the minimum requirement of 0.5 mg/l during the past eight weeks of monitoring, failing to comply with Rule T2.19.

E. coli was not detected in the Lawrence distribution network during the past eight weeks of monitoring. Of the 84 FAC samples analysed 14 were below the minimum requirement of 0.2 mg/l during the past eight weeks of monitoring, failing to comply with Rule D2.5.

Six aluminium results analysed from the Lawrence distribution network were above the MAV of 1 mg/l during the past eight weeks of monitoring, the most recent non-compliant residual was detected on 3 April 2024 with a result of 2.32 mg/l. An elevated sampling programme will remain in place while the analysed results are above the MAV.

Lawrence WTP	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	12	28	44
Compliant Samples collected in the past eight weeks	12	28	34

Lawrence Distribution Network	Total Aluminium	<i>E. coli</i>	FAC
Samples Collected in the past eight weeks	36	59	84
Compliant Samples collected in the past eight weeks	30	59	70

Water Treatment - Lawrence WTP
Treated Water Compliance Report for October 2023

Rule:		4.7 T2 Treatment Rules								T3 3 Log Rules	
Requirement:	Filter Run Time	T2.9	UV Run Time	T2.12	T2.13	T2.14	T2.19	T2.21	T3.39	T3.40	
Plant Run Time		% of day Turbidity < 5.0 NTU		% of day UVJ within Certified Dose (40 mJ/cm3)	% of day UVT > Min (89.6%)	% of day UV Flow Rate < Max (12.5 l/s)	% of day FAC > 0.5 mg/l	% of day pH Between 6.5 - 8.0	Lawrence.Filter NTU.<=0.3.Percent	>0.5 NTU for 15 consecutive minutes or more (total time)	
Date	min/day	95%		95%	95%	95%	95%	95%	95%	0	
1/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	81.9%	25.5%	100.0%	0
2/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	76.4%	81.0%	100.0%	0
3/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	70.3%	100.0%	100.0%	0
4/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	82.1%	100.0%	100.0%	0
5/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	70.1%	100.0%	100.0%	0
6/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	79.4%	100.0%	100.0%	0
7/03/2024	1440	1440	100.0%	1440	91.6%	100.0%	91.6%	89.7%	99.2%	99.9%	0
8/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	99.9%	100.0%	99.9%	0
9/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	85.8%	96.5%	100.0%	0
10/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	85.5%	88.1%	100.0%	0
11/03/2024	1434	1434	100.0%	1434	99.9%	100.0%	99.9%	54.5%	52.0%	100.0%	0
12/03/2024	1440	1440	100.0%	1440	95.6%	100.0%	100.0%	74.7%	59.2%	70.1%	4
13/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	96.9%	100.0%	98.9%	0
14/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	54.3%	100.0%	99.2%	0
15/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	64.2%	100.0%	99.1%	0
16/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	72.8%	100.0%	100.0%	0
17/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	72.8%	100.0%	100.0%	0
18/03/2024	1440	1440	100.0%	1440	96.3%	100.0%	96.0%	68.5%	100.0%	100.0%	0
19/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	91.6%	100.0%	100.0%	0
20/03/2024	1440	1440	100.0%	1440	84.9%	79.5%	99.9%	51.7%	72.8%	92.0%	1
21/03/2024	1440	1440	100.0%	1440	99.0%	13.7%	100.0%	99.0%	5.1%	93.3%	0
22/03/2024	1440	1440	100.0%	1440	95.3%	0.0%	95.1%	51.3%	100.0%	98.5%	0
23/03/2024	1440	1440	100.0%	1440	99.9%	54.0%	99.9%	100.0%	100.0%	100.0%	0
24/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	64.0%	100.0%	100.0%	0
25/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	93.8%	100.0%	100.0%	0
26/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	64.9%	100.0%	100.0%	0
27/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	59.2%	100.0%	100.0%	0
28/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	69.7%	99.7%	99.9%	0
29/03/2024	1440	1440	100.0%	1440	100.0%	100.0%	100.0%	83.2%	100.0%	77.7%	3
30/03/2024	1440	1440	100.0%	1440	58.3%	63.8%	100.0%	66.0%	75.6%	41.0%	8
31/03/2024	1440	1440	100%	1440	86.6%	48.9%	100.0%	62.5%	47.9%	60.3%	5
Number of Days that were Compliant:		31		27	25	30	4	22	25	26	
Operator / Supplier Comments:											

1.4 Water Treatment Abatement Notices and Compliance Orders

The Lawrence WTP abatement notice EN.RMA.23.0015 was issued in February 2023 in relation to the non-compliant backwash discharge volume and quality. The Council's application to extend the consent and increase the discharge volume to meet compliance was approved. A new consent, RM23.718.01, was issued on 13 March 2024.

The Whitelea Rd WTP was assessed as Significantly Non-compliant due to the ongoing breaches of the weekly backwash discharge volume. In response to this assessment, the Council will apply to vary the existing consent to make allowance for the additional volume that continuously discharges from the treatment plant.

Taumata Arowai issued a Compliance Order for the Milton WTP on 24 November 2023. Items identified by Sections 3(b) and 4 of the Compliance Order were addressed before the 29 March 2024 deadline. Evidence of Council's compliance with Sections 3(b) and 4 was submitted to Taumata Arowai on 28 March 2024. The Council requested an extension for Sections 1 and A(i) of the Compliance Order. Taumata Arowai granted the extension on 5 April 2024. The Council is required to update Taumata Arowai with monthly progress reports.

1.5 Taumata Arowai Reviews and Audits

On 7 and 8 March 2024, staff from the 3 Waters team met with auditors from Taumata Arowai for site visits at North Bruce, Stirling, Moa Flat, and Lawrence WTPs. Full audit findings have not been provided by Taumata Arowai at time of writing, but a summary meeting is expected to occur in mid-April.

Feedback from Taumata Arowai regarding key issues they identified at the Lawrence water treatment plant was provided by email on 21 March 2024.

Taumata Arowai believed the microbiological barriers for Lawrence were ineffective and requested that Clutha District Council take steps under Section 21 of the Water Services Act to protect public health.

The 3 Waters team provided Taumata Arowai with a 10-point action plan, which included placing the Lawrence drinking-water supply on a boil water notice. Regular updates will be provided to Taumata Arowai with progress on the required improvements.

An action plan for updating the Drinking Water Safety Plans for Balclutha, Owaka, Glenkenich, Clydevale-Pomahaka, Kaitangata, and Tapanui was submitted to Taumata Arowai on 22 March 2024. The review of the Milton DWSP that is required by the Compliance Order has been included in this action plan.

Taumata Arowai has accepted this plan and will be provided with regular updates on progress by the Team Leader Compliance and Reporting.

1.6 Disinfection Byproducts

Disinfection Byproducts (DBP) are formed when disinfectants like chlorine interact with natural organic matter in the source water. The pH of the water, length of time chlorine is in contact with the organic matter, temperature, and cleanliness of the distribution network all contribute to the formation of DBPs. The increased concentration of chlorine in the water causes an increase in DBP formation.

The formation of DBPs is impacted by increased temperatures, so it would be expected that there will be more DBPs formed in spring and summer.

The type of DBP formed depends on the pH. The types found in the Waitahuna and Milton distribution networks are associated with lower water pH (6.5 – 7.5).

Waitahuna Supply				
Date	Location	Dichloroacetic acid (MAV 0.05 mg/l)	Trichloroacetic Acid (MAV 0.2 mg/l)	FAC (mg/l)
28/7/2023	Tuapeka East	<0.005	0.06	<0.05
	Balmoral 1	0.031	0.07	0.33
	Balmoral 2	0.038	<0.05	0.25
5/10/2023	Waitahuna WTP	0.029	<0.05	2.01
	Tuapeka East	0.050	<0.05	0.15
	Balmoral 1	0.039	0.06	0.66
	Balmoral 2	0.039	<0.05	0.08
5/1/2024	Waitahuna WTP	0.033	<0.05	1.37
	Tuapeka East	<0.005	<0.05	<0.05
	Balmoral 1	<0.005	<0.05	<0.05
	Balmoral 2	<0.005	<0.05	<0.05
4/4/2024	Waitahuna WTP	0.024	<0.05	2.55
	Tuapeka East	0.076	0.19	0.24
	Balmoral 1	0.052	0.09	0.98
	Balmoral 2	0.073	0.15	0.17

Milton Supply				
Date	Location	Dichloroacetic acid (MAV 0.05 mg/l)	Trichloroacetic Acid (MAV 0.2 mg/l)	FAC (mg/l)
5/10/2023	Milton Town	0.068	0.06	0.98
	Milton OCF	0.006	<0.05	1.59
	Milton WTP	<0.005	<0.05	2.26
10/11/2023	Milton Town	0.049	0.06	0.88
	Milton OCF	0.008	<0.05	1.5
	Milton WTP	<0.005	<0.05	1.78
5/1/2024	Milton Town	0.023	<0.05	1.32
	Milton OCF	0.012	<0.05	1.94
	Milton WTP	0.006	<0.05	2.38
4/4/2024	Milton Town	0.034	0.08	1.0
	Milton OCF	0.012	<0.05	1.99
	Milton WTP	0.005	<0.05	

Public health advice regarding DBPs, and water treatment is that the microbiological quality of the water should not be compromised to minimise DBP formation. Reducing the concentration of chlorine in the treated water to prevent DBP formation could result in increased levels of E. Coli. Adverse health effects from DBPs are based upon long-term continuous exposures.

2 Wastewater Treatment Plant Compliance Focus

2.1 ORC Wastewater Treatment Abatement Notices

Kaka Point WWTP abatement notice was issued in December 2022 in relation to the non-compliant discharge quality. Site upgrades were completed to improve the discharge quality in 2023. The BioFiltro bed media was replaced at the start of 2024 and the UV Lamps were replaced in March 2024. The BioFiltro bed leaks are now captured and recycled back into the pond. The abatement notice was cancelled on 18 March 2024.

- The Kaka Point WWTP is likely to maintain compliance with the limits for Ammoniacal Nitrogen (NH₃-N), pH, and Total Phosphorus (TP).
- The Kaka Point WWTP is likely to achieve compliance with the limits for BOD₅, Enterococci, and Total Suspended Solids (TSS).
- The Kaka Point WWTP will struggle to achieve consistent compliance with the limit for Total Nitrogen (TN).

Kaka Point Wastewater Treatment Plant Resource Consent Compliance Report RC No.: 2008.690; Expiry Date: 26/01/2046								
Final Effluent Sample Results (gTD)								
ORC Site Name	Date	NH -N g/m ³	BOD g/m ³	Enterococci cfu/ 100mL	pH	TSS g/m ³	TN g/m ³	TP g/m ³
Kaka Point Oxidation Point	4/04/2023	4.0	15	360	7.3	51	27.1	8.1
Kaka Point Oxidation Pond	30/05/2023	11.9	8	10	6.9	14	32.5	5.5
Kaka Point Oxidation Pond	7/06/2023	14.6	5	230	6.6	13	38.0	6.0
Kaka Point Oxidation Pond	5/07/2023	5.2	6	110	6.5	10	34.2	5.2
Kaka Point Oxidation Pond	2/08/2023	4.1	6	80	6.1	34	28.6	4.2
Kaka Point Oxidation Pond	5/09/2023	2.3	13	60	6.6	22	29.1	5.4
Kaka Point Oxidation Pond	6/10/2023	6.2	9	10	7.6	26	28.5	6.1
Kaka Point Oxidation Pond	9/11/2023	5.3	1.5	10	4.3	7	42.8	7.1
Kaka Point Oxidation Pond	7/12/2023	14.2	10	20	6.8	18	42.0	8.4
Kaka Point Oxidation Pond	4/01/2024	7.3	13	5	7.4	19	39.9	10.3
Kaka Point Oxidation Pond	7/02/2023	38.8	14	30	7.5	9	52.0	8.7
Kaka Point Oxidation Pond	6/03/2024	49.9	12	360	7.6	22	49.5	8.9
Lower Limit					6.5			
Upper Limit					9			
90th% Limit		20	12	140		30	30	10
12-Month Rolling 90th Percentile		36.4	13.9	347.0	7.6	33.2	48.8	8.8

The Lawrence WWTP abatement notice was issued in December 2022 in relation to the discharge quality. Site upgrades are in progress to improve the discharge quality. Further optimisation of the treatment process is underway to achieve full compliance and a new aerator will be installed. The BioFiltro bed media was replaced at the start of 2024 and the UV Lamps were replaced in March 2024. The abatement notice was cancelled on 18 March 2024.

- The Lawrence WWTP is likely to maintain compliance with the limits for NH₃-N, *E. coli*, pH, and TP.
- The Lawrence WWTP will struggle to achieve consistent compliance with the limits for BOD₅, TSS, and TN.

Lawrence Wastewater Treatment Plant								
Resource Consent Compliance Report								
RC No.: 2008.308; Expiry Date: 21/01/2046								
Final Effluent Sample Results (YTD)								
ORC Site Name	Sample Date	NH ₃ -N	BOD	E.coli	pH	TSS	TN	TP
		g/m ³	g/m ³	cfu/100mL		g/m ³	g/m ³	g/m ³
Lawrence Oxidation Pond Final Effluent	4/04/2023	3.4	5	10	7.1	13	21.7	5.7
Lawrence Oxidation Pond Final Effluent	5/05/2023	0.9	16	10	6.9	18	23.6	4.0
Lawrence Oxidation Pond Final Effluent	7/06/2023	6.5	19	70	6.6	16	29.9	3.6
Lawrence Oxidation Pond Final Effluent	6/07/2023	3.4	22	230	6.8	39	33.8	4.4
Lawrence Oxidation Pond Final Effluent	3/08/2023	9.3	22	10	7.2	37	27.6	4.0
Lawrence Oxidation Pond Final Effluent	5/09/2023	13.5	39	100	8	76	31.3	6.2
Lawrence Oxidation Pond Final Effluent	6/10/2023	3.4	28	10	6.8	39	35.0	6.4
Lawrence Oxidation Pond Final Effluent	2/11/2023	20.2	38	10	7.2	30	27.3	8.1
Lawrence Oxidation Pond Final Effluent	7/12/2023	18.0	22	10	7.9	14	35.0	8.3
Lawrence Oxidation Pond Final Effluent	4/01/2024	18.1	12	20	7.1	20	36.8	6.9
Lawrence Oxidation Pond Final Effluent	7/02/2024	15.6	19	10	7.4	53	28.1	9.2
Lawrence Oxidation Pond Final Effluent	6/03/2024	1.5	12	10	7.2	16	41.7	7.2
Lower Limit					6.5			
Upper Limit					9			
90th% Limit		20	12	260		30	30	10
90th% Percentile		18.1	37.0	97.0	7.9	51.6	36.6	8.3

The Owaka WWTP abatement notice was issued in December 2022 in relation to the discharge quality. The UV Lamps were replaced in March 2024. Improvement works are underway to reduce I&I in the sewer network. The Owaka WWTP discharge quality is compliant for most of 2023 and fully compliant in January 2024. The abatement notice was cancelled on 18 March 2024.

- The Owaka WWTP is likely to maintain compliance with the limits for NH₃-N, *E. coli*, pH, TN, and TP.
- The Owaka WWTP is likely to achieve compliance with the limits for BOD₅, and TSS.

Owaka Wastewater Treatment Plant								
Resource Consent Compliance Report								
RC No.:2003.680; Expiry Date: 25/11/2045								
Final Effluent Sample Results 90th Percentile Compliance								
ORC Site Name	Sample Date	NH ₃ -N	BOD ₅	E.coli	pH	TSS	TN	TP
		g/m ³	g/m ³	cfu/100mL		g/m ³	g/m ³	g/m ³
Owaka STP Final Effluent	4/04/2023	4.3	10	30	7.4	11	13.0	5.7
Owaka STP Final Effluent	5/05/2023	5.4	10	120	6.8	59	22.6	4.3
Owaka STP Final Effluent	8/06/2023	0.6	3	150	7.3	12	2.9	0.1
Owaka STP Final Effluent	5/07/2023	6.7	10	10	7.4	19	13.9	1.8
Owaka STP Final Effluent	2/08/2023	0.1	3	5	7.2	15	2.4	0.1
Owaka STP Final Effluent	5/09/2023	4.7	12	10	7.2	11	9.2	3.2
Owaka STP Final Effluent	1/10/2023	2.7	19	10	7.2	26	11.6	1.6
Owaka STP Final Effluent	2/11/2023	11.2	17	110	7.3	46	16.6	4.5
Owaka STP Final Effluent	7/12/2023	6.8	10	5	7.9	17	16.8	4.8
Owaka STP Final Effluent	4/01/2024	5.6	6	30	7.1	8	9.8	6.2
Owaka STP Final Effluent	7/02/2024	5.1	17	170	7.5	45	18.0	7.1
Owaka STP Final Effluent	6/03/2024	0.5	8	10	7.9	3	18.1	6.5
Lower Limit					6.5			
Upper Limit					9			
90th Percentile Limit		20	12	260		30	30	10
Rolling 90th Percentile Results		6.8	17.0	147.0	7.9	45.9	18.1	6.5

The Stirling WWTP abatement notice was issued in December 2022 in relation to the discharge quality. The UV Lamps were replaced in March 2024. All Site upgrades are complete at this site. The Stirling WWTP discharge quality is compliant for most of 2023 and fully compliant in January 2024. The abatement notice was cancelled on 18 March 2024.

- The Stirling WWTP is likely to maintain compliance with the limits for NH₃-N, BOD₅, *E. coli*, pH, TSS, and TP.
- The Stirling WWTP is likely to achieve compliance with the limits for TN.

Stirling Wastewater Treatment Plant								
Resource Consent Compliance Report								
RC No.: 2005.193; Expiry Date: 25/11/2045								
Final Effluent Sample Results 90th Percentile Compliance								
ORC Site Name	Date	NH ₃ -N	BOD	E.coli	pH	TSS	TN	TP
		g/m ³	g/m ³	cfu/100mL		g/m ³	g/m ³	g/m ³
Stirling Oxidation Pond Final Effluent	4/04/2023	0.1	10	120	8.8	22	11.8	7.0
Stirling Oxidation Pond Final Effluent	5/05/2023	6.3	8	10	8.8	24	18.3	5.6
Stirling Oxidation Pond Final Effluent	7/06/2023	12.0	6	10	8.9	12	30.7	5.5
Stirling Oxidation Pond Final Effluent	5/07/2023	10.5	10	20	7.1	8	33.0	5.5
Stirling Oxidation Pond Final Effluent	2/08/2023	3.3	1	5	6.5	8	34.9	5.3
Stirling Oxidation Pond Final Effluent	5/09/2023	2.5	9	10	8.3	24	25.4	5.7
Stirling Oxidation Pond Final Effluent	6/10/2023	0.5	6	10	8.5	5	18.6	4.7
Stirling Oxidation Pond Final Effluent	2/11/2023	1.6	3	5	7.5	21	20.4	6.1
Stirling Oxidation Pond Final Effluent	7/12/2023	0.4	7	5	7.6	18	18.0	6.9
Stirling Oxidation Pond Final Effluent	4/01/2024	1.4	7	10	8.6	18	7.8	7.9
Stirling Oxidation Pond Final Effluent	7/02/2024	6.1	8	10	7.4	11	16.0	8.6
Stirling Oxidation Pond Final Effluent	4/03/2024	9.9	6	140	7.4	14	19.8	7.4
Lower Limit					6.5			
Upper Limit					9			
90th Percentile Limit		20	12	260		30	30	10
Rolling 90th Percentile Results		10.4	9.9	110.0	8.8	23.8	32.8	7.9

The Milton WWTP abatement notice was issued in December 2022 in relation to the discharge quality and has now expired. Further optimisation of the maintenance regime and treatment process is underway to achieve full compliance. The UV Reactor is getting an uplift. The Council requested an extension of the abatement notice on 12 December 2023. There was significant improvement in discharge quality from this site since August 2023.

- The Milton WWTP is likely to maintain compliance with the limits for pH, cBOD5, TSS, NH3-N (Winter), TN, TP, and *E. coli*.
- The Milton WWTP is likely to achieve compliance with the limits for NH3-N (Summer) by March 2024.

Milton Wastewater Treatment Plant									
Resource Consent Compliance Report									
RC No.:2007.090_V1; Expiry Date: 20/05/2044									
Effluent Sample Results (YTD) CDCWW-16:									
		pH	CBOD	TSS	NH3-N (Summer)	NH3-N (Winter)	TN	TP	E.coli
			g/m3	g/m3	Nov-Mar	Apr-Oct	g/m3	g/m3	cfu/100mL
Summer Limit									
Lower Limit		6.5							
Upper Limit		9	30	40	10	19	22	14	2100
ORC Site Name	Sample Date								
Milton STP Final Effluent	4/03/2024	7.2	6	19	9.4		21.1	5.3	70
Milton STP Final Effluent	7/02/2024	7.2	6	21	9.0		20.2	5.2	1100
Milton STP Final Effluent	4/01/2024	7.6	8	17	5.2		21.1	4.5	460
Milton STP Final Effluent	7/12/2023	7.6	8	31	7.0		17.8	5.1	150
Milton STP Final Effluent	9/11/2023	6.8	7	8	9.0		20.3	3.8	1300
Milton STP Final Effluent	6/10/2023	7.4	7	22		8.0	17.9	3.6	360
Milton STP Final Effluent	5/09/2023	7.4	10	8		10.6	20.7	3.9	90
Milton STP Final Effluent	2/08/2023	7	6	10		4.6	13.2	1.9	70
Milton STP Final Effluent	5/07/2023	7.2	6	48		6.4	14.5	3.0	140
Milton STP Final Effluent	7/06/2023	7	15	18		13.7	20.5	4.4	2900
Milton STP Final Effluent	5/05/2023	6.5	14	77		9.0	17	7.0	1200
Milton STP Final Effluent	4/04/2023	7.3	14	19		7.5	15.1	6.6	8000
Milton STP Final Effluent	2/03/2023	7.4	12	23	10.4		22.8	6.1	4800
Milton STP Final Effluent	2/02/2023	7	11	16	11.5		16.6	6.9	4100
Milton STP Final Effluent	6/01/2023	6.8	24	25	9.1		20	6.8	8000
Milton STP Final Effluent	2/10/2022	6.8	13	38	7.4		22.7	5.0	900
Milton STP Final Effluent	3/11/2022				5.4				
Milton STP Final Effluent	7/10/2022					7.7			
Milton STP Final Effluent	2/09/2022					12.4			
Milton STP Final Effluent	4/08/2022					10.7			
Milton STP Final Effluent	5/07/2022					5.8			
Milton STP Final Effluent	8/06/2022					20.2			
Milton STP Final Effluent	5/05/2022					12.4			
Milton STP Final Effluent	8/04/2022					9.1			
Milton STP Final Effluent	3/03/2022				9.0				
Milton STP Final Effluent	1/02/2022				8.3				
90th Percentile Limit			30	40	10	19	22	14	2100
90th Percentile (Last 10 Results)		7.6	11	33	10.5	12.5	21.1	5.2	1460
95th Percentile Limit						25			
95th Percentile (Last 10 Results)						10.9			
Geometric Mean Limit									400
Geometric Mean (Last 10 Results)									302

The Kaitangata WWTP abatement notice was issued in December 2022 in relation to the discharge quality. The Council requested an extension of the abatement notice on 7 November 2023. The Council were able to demonstrate ongoing improvements to the discharge quality, and in response the ORC granted an extension until 30 June 2024.

- The Kaitangata WWTP is likely to maintain compliance with the limits for pH, BOD5, TSS, TN, TP, and *E. coli*.
- The Kaitangata WWTP is unable to achieve compliance with the limits for NH3-N by 30 June 2024.

Kaitangata Wastewater Treatment Plant Resource Consent Compliance Report RC No.: RM14.001.01; Expiry Date: 21/03/2049 Plant Discharge Volume (m ³) Plant Effluent Sample Results (YTD)								
ORC Site Name		pH	BOD	TSS	NH -N	TN	TP	E.coli
			g/m3	g/m3	g/m3	g/m3	g/m3	cfu/100mL
		Lower Limit	6.5					
Upper Limit	9	20	30	20	35	10	260	
Kaitangata Oxidation Pond Final Effluent	3/04/2023	7.5	7	6	29.4	31.8	4.1	10
Kaitangata Oxidation Pond Final Effluent	5/05/2023	8.0	7	21	25.7	29.9	4.3	10
Kaitangata Oxidation Pond Final Effluent	2/06/2023	7.3	6	5	27.8	30.6	4.5	100
Kaitangata Oxidation Pond Final Effluent	3/07/2023	7.7	14	23	19.6	24.8	3.7	50
Kaitangata Oxidation Pond Final Effluent	9/08/2023	8.4	2	3	16.8	18.9	2.0	10
Kaitangata Oxidation Pond Final Effluent	7/09/2023	7.9	6	3	17.9	20.6	2.3	10
Kaitangata Oxidation Pond Final Effluent	5/10/2023	7.7	10	6	16.6	18.9	1.8	10
Kaitangata Oxidation Pond Final Effluent	2/11/2023	7.9	8	3	29.0	33.6	1.0	5
Kaitangata Oxidation Pond Final Effluent	4/12/2023	7.8	4	3	31.6	35.3	1.1	5
Kaitangata Oxidation Pond Final Effluent	4/01/2024	8.0	6	3	23.5	28.6	0.9	5
Kaitangata Oxidation Pond Final Effluent	7/02/2024	8.6	3	3	14.0	19.1	1.1	5
Kaitangata Oxidation Pond Final Effluent	6/03/2024	7.5	3	3	23.3	29.7	0.4	20
<i>Compliance</i>		Yes	Yes	Yes	No	Yes	Yes	Yes
<i>9 out of 10 consecutive samples not to exceed limit</i>								

Improvement: Monthly Compliance achieved / anticipated	No Change (may be a non-compliance if continues)	Consent non-compliance
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Balclutha WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit</u>									
Compliant									
<u>Discharge Parameters:</u>									
Non-compliant results.									
<u>Dissolved Oxygen:</u>									
Compliant average									
<u>HSE access:</u>									
Concerns for samplers and operators – existing workarounds are in place.									

Balclutha Wastewater Treatment Plant								
Resource Consent Compliance Report								
RM17.328.01								
Final Discharge Results								
Plant Effluent Sample Results (YTD) Monthly								
ORC Site Name	Parameter	CBOD5	TSS	E. Coli	NH -N	TP	DO	pH
		g/m ³	g/m ³	cfu/100 mL	g/m ³	g/m ³	g/m ³	
	8 out of 12	40	70	55000	20	7.2		9
	2 out of 12	85	150	350000	25	8.9		6.5
Balclutha Wastewater Treatment Plant	4/04/2023	28	100	8000	22.9	2.61	4.4	7.2
Balclutha Wastewater Treatment Plant	5/05/2023	21	32	8000	33.1	3	3.3	7.1
Balclutha Wastewater Treatment Plant	7/06/2023	43	66	8000	35.1	3.82		
Balclutha Wastewater Treatment Plant	5/07/2023	37	48	8000	31.3	3.01	0.2	6.6
Balclutha Wastewater Treatment Plant	2/08/2023	34	48	8000	27.4	2.73	0.4	7.2
Balclutha Wastewater Treatment Plant	5/09/2023	31	40	110000	31.4	2.59	0.4	7.5
Balclutha Wastewater Treatment Plant	6/10/2023	19	37	10000	27.9	2.17	0.0	7.3
Balclutha Wastewater Treatment Plant	2/11/2023	23	29	10000	28.5	1.47	0.8	7.5
Balclutha Wastewater Treatment Plant	4/12/2023	33	26	1600	33.5	2.62	2.6	7.8
Balclutha Wastewater Treatment Plant	4/01/2024	37	49	1000	31.1	2.97	5.5	7.6
Balclutha Wastewater Treatment Plant	8/02/2024	39	66	2200	28.9	2.74	6.2	8.0
Balclutha Wastewater Treatment Plant	6/03/2024	24	53	800	29.2	2.54	11.8	7.6
Number of Samples		12	12	12	12	12		
8 out of 12 consecutive samples	Limit of non-compliant samples	8	8	8	8	8		
	Actual	1	1	1	11	0		
Median Compliant?		Yes	Yes	Yes	No	Yes		
2 out of 12 consecutive samples	Limit of non-compliant samples	2	2	2	2	2		
	Actual	0	0	0	11	0		
95th Compliant?		Yes	Yes	Yes	No	Yes		

Balclutha WWTP Site Upgrades include:

- Segregation of the existing pond into two linked cells. Two aerators were installed in the upstream cell, imparting both dissolved oxygen and circulation pattern around the cell.
- Installation in the downstream cell of 85 BioShell units, intended to reduce BOD, TSS and NH₃. This includes new building to house blowers and recirculation pumps, along with a curtain wall in the BioShell zone which will contain floating hexagonal plates to eliminate sunlight. The BioShell installation is expected to be commissioned during May 2024.
- Installation of a new inlet screen, incorporating a stone trap into which road tankers discharge collected septage wastes. Expected to be commissioned by end of end of May 2024. The screen will help reduce TSS and BOD.

Clinton WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Discharge Volume Limit: Compliant									
Discharge Parameters: Non-compliant results.									
Dissolved Oxygen: Compliant average									
HSE access: Concerns for samplers and operators – existing workarounds are in place.									

Clinton Wastewater Treatment Plant								
Resource Consent Compliance Report								
RC No.:17.092.01; Expiry Date: 5/5/2027								
Final Discharge Results								
Plant Effluent Sample Results (YTD)								
ORC Site Name		DO	pH	cBOD ₅	TSS	E. Coli	NH ₃ -N	TP
		g/m ³		g/m ³	g/m ³	cfu/100ml	g/m ³	g/m ³
		Lower Limit	9					
		Median Limit			24	26	550	13
95th Percentile Limit				37	46	3400	17.5	11
Clinton STP Final Effluent	4/04/2023	2.0	7.4	25	32	690	16.8	6.7
Clinton STP Final Effluent	5/05/2023	1.0	7.8	19	41	2000	19.3	7.3
Clinton STP Final Effluent	7/06/2023	11.0	8.3	7	37	660	28.4	6.4
Clinton STP Final Effluent	5/07/2023	9.1	7.2	10	34	3100	14.9	3.4
Clinton STP Final Effluent	2/08/2023	13.0	8.2	6	31	110	10.4	1.5
Clinton STP Final Effluent	5/09/2023	9.0	8.3	5	23	140	10.7	2.8
Clinton STP Final Effluent	6/10/2023	9.0	8.2	13	24	180	11.2	3.9
Clinton STP Final Effluent	2/11/2023	5.0	7.3	10	23	2100	12.9	4.7
Clinton STP Final Effluent	7/12/2023	5.0	7.8	12	19	2600	11.4	4.1
Clinton STP Final Effluent	4/01/2024	3.0	7.8	4	13	6000	12.8	5.4
Clinton STP Final Effluent	8/02/2024	9.5	7.8	22	40	2100	6.9	6.2
Clinton STP Final Effluent	4/03/2024	10.3	7.9	20	53	2300	6.8	6.0
Number of Samples				12	12	12	12	12
8 out of 12 consecutive samples	Limit of non-compliant samples			8	8	8	8	8
	Actual			1	7	9	4	8
Median Compliant?				Yes	Yes	No	Yes	Yes
2 out of 12 consecutive samples	Limit of non-compliant samples			2	2	2	2	2
	Actual			0	1	1	2	0
95th Compliant?				Yes	Yes	Yes	Yes	Yes

Clinton WWTP Site Upgrades include:

- Segregation of the existing pond into two linked cells by a curtain wall installed across the pond.
- Installation of BioShell units in the downstream portion of the pond, intended to reduce BOD, TSS and NH₃. This includes associated blowers, and floating hexagonal plates in the BioShell zone. The BioShell were commissioned in March 2024.
- Installation of a UV reactor between the pond and the wetland to provide bacterial disinfection; expected to be commissioned in June 2024. The UV Reactor will help reduce *E. coli*.
- Installation of additional plants in the wetland cells and removal of accumulated sludge.

Waihola WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Discharge Volume Limit:									
Discharged Outside of the Tidal time.									
Discharge Parameters:									
Non-compliant results.									
Dissolved Oxygen:									
Compliant average									
HSE access:									
No new H&S issues have been identified at this site.									

Waihola Wastewater Treatment Plant								
Resource Consent Compliance Report								
RM15.364.01 Expire date May 2028								
Final Effluent (YTD)								
ORC Site Name	Date	CBOD ₅	TSS	E. Coli	NH ₃ -N	TP	DO	pH
		g/m ³	g/m ³	cfu/100 ml	g/m ³	g/m ³	g/m ³	
	median	75	100	80000	23	5.7		9
95 percentile	140	175	315000	31	8.2		6.5	
Waihola Wastewater Treatment Plant	24/04/2023	11	79	3900	39.7	7.09	6.9	7.1
Waihola Wastewater Treatment Plant	30/05/2023	11	77	2400	28.8	5.57	6.7	7.2
Waihola Wastewater Treatment Plant	7/06/2023	7	35	4900	28.8	4.92	7.4	7.2
Waihola Wastewater Treatment Plant	24/07/2023	<3	33	1100	0.05	0.117	4.4	7.2
Waihola Wastewater Treatment Plant	10/08/2023	15	39	8000	26.9	3.78	6.3	7.2
Waihola Wastewater Treatment Plant	8/09/2023	10	38	450	28.6	5.87	6.6	7.2
Waihola Wastewater Treatment Plant	11/10/2023	18	35	730	26.2	4.84	6.3	7.1
Waihola Wastewater Treatment Plant	8/11/2023	16	37	5400	27.9	6.64	7.8	7.3
Waihola Wastewater Treatment Plant	6/12/2023	15	122	1600	31.5	9.15	4.2	7.1
Waihola Wastewater Treatment Plant	4/01/2024	12	33	6400	37.5	9.87	10.8	9.3
Waihola Wastewater Treatment Plant	7/02/2024	8	29	780	41.7	11.6	4.6	7.1
Waihola Wastewater Treatment Plant	4/03/2024	14	52	4800	44.3	8.78	0.5	7.5
Number of Samples		12	12	12	12	12		
8 out of 12 consecutive samples	Limit of non-compliant samples	8	8	8	8	8		
	Actual	0	1	0	11	7		
Median Compliant?		Yes	Yes	Yes	No	Yes		
2 out of 12 consecutive samples	Limit of non-compliant samples	2	2	2	2	2		
	Actual	0	0	0	5	4		
95th Compliant?		Yes	Yes	Yes	No	No		

Waihola WWTP Site Upgrades include:

- Inlet screen installed, although still to be connected to power supply. The screen will help reduce TSS and BOD.
- An identified issue with the tidal discharge controls was identified in January 2024 for the previous month. This issue has been resolved and an alarm warning system implemented to avoid recurrences.
- Installation of BioShell units in the downstream portion of the pond, intended to reduce BOD, TSS and NH₃. This includes associated blowers, and floating hexagonal plates in the BioShell zone. The BioShell were commissioned in March 2024.
- Additional aerator installed during March 2024, imparting both dissolved oxygen and circulation pattern around the cell.

Milton WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit:</u> Compliant									
<u>Discharge Parameters:</u> Compliant									
<u>I/I Plan:</u> Stormwater I&I plan has been prepared and submitted to the ORC. Property inspections are completed with reminder letters to be issued.									
<u>HSE concerns:</u> Raised by sampling staff, ORC & operators regarding safe access to sample locations and below ground maintenance pits – upgrades are underway.									

Milton WWTP Site Upgrades include:

- Sludge is being removed as expediently as possible from the Imhoff tanks over this summer (four sludge pours so far) and dried on the sludge drying beds, then short-term on-site storage before bulk removal to landfill.
- A full set of spare UV lamps have been purchased in January 2024 and are now held on site (along with other UV equipment spares).
- Servicing of the UV system by Xylem (UV equipment manufacturer/supplier) has been requested. This will include replacing the UV lamps and replacing the UV light intensity reference sensors.

Kaitangata WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit</u> Compliant									
<u>Pond Overflow</u> Compliant									
<u>Discharge Parameters:</u> Non-compliant results.									
<u>HSE access:</u> Concerns for samplers and operators – existing workarounds are in place.									

Kaitangata WWTP Site Upgrades include:

- Inlet screen installed and commissioned in mid-2023. The screen will help reduce TSS and BOD.
- Alteration to existing curtain wall segregations.
- Additional BioShells and aerator installed, along with floating hex covers, intended to reduce BOD, TSS and NH₃. All commissioned in January 2024.
- Full manhole inspection completed during March 2024.

Heriot WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit:</u>									
Compliant									
<u>Pond Overflow</u>									
Compliant									
<u>Discharge Parameters:</u>									
Compliant									

Heriot Wastewater Treatment Plant Resource Consent Compliance Report RC No.:RM13.443.01; Expiry Date: 28/02/2049 Final Effluent Sample Results (YTD)									
ORC Site Name		NH -N	BOD	E.coli	pH	TSS	TN	TP	
		g/m3	g/m3	cfu/100mL		g/m3	g/m3	g/m3	
		Lower Limit			6.5				
	Upper Limit	20	20	260	9	30	35	10	
Heriot Oxidation Pond Final Effluent	5/04/2023	13.7	6	100	8.2	6	16.8	2.9	
Heriot Oxidation Pond Final Effluent	5/05/2023	22.5	6	100	7.3	11	33.4	5.5	
Heriot Oxidation Pond Final Effluent	2/06/2023	23.5	9	100	7.5	4	26.7	3.4	
Heriot Oxidation Pond Final Effluent	6/07/2023	22.4	3	10	7.8	3	27.1	3.0	
Heriot Oxidation Pond Final Effluent	9/08/2023	18.6	3	5	8.2	3	23.2	2.5	
Heriot Oxidation Pond Final Effluent	7/09/2023	23.2	16	10	7.8	6	27.0	3.6	
Heriot Oxidation Pond Final Effluent	5/10/2023	20.4	6	10	7.9	6	29.1	3.6	
Heriot Oxidation Pond Final Effluent	2/11/2023	22.9	3	10	9.2	6	26.8	3.4	
Heriot Oxidation Pond Final Effluent	4/12/2023	19.8	2	10	6.8	3	24.8	4.8	
Heriot Oxidation Pond Final Effluent	4/01/2024	19.3	2	5	8.0	3	26.5	5.3	
Heriot Oxidation Pond Final Effluent	7/02/2024	7.55	10	5	7.9	3	11.5	4.8	
Heriot Oxidation Pond Final Effluent	6/03/2024	11.4	2	10	7.8	3	15.8	5.2	
Compliance		NO	YES	YES	YES	YES	YES	YES	YES

9 out of 10 consecutive samples not to exceed limit

Heriot WWTP Site Upgrades include:

- Installed another five BioShells, supplementing the existing units, along with floating hex covers, intended to reduce BOD, TSS and NH₃. All commissioned in January 2024.

Kaka Point WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit:</u>									
Compliant									
<u>Pond Overflow:</u>									
Compliant									
<u>Discharge Parameters:</u>									
Non-compliant results.									
<u>HSE access:</u>									
Concerns for samplers and operators – existing workarounds are in place.									

Kaka Point WWTP Site Upgrades include:

- Inlet screen installed and commissioned in mid-2023. The screen will help reduce TSS and BOD.
- Peripheral drain installed around the Biofiltro bed in early 2024 to capture liquid leaking from walls, directing the captured liquid to the Pond.
- Wood shavings and worms completely replaced during February 2024.

Owaka WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit:</u> Compliant	Red	Red	Green	Red	Green	Green	Green	Green	Green
<u>Pond Overflow:</u> Compliant	Red	Red	Red	Green	Green	Green	Green	Green	Green
<u>Discharge Parameters:</u> Compliant	Green	Green	Green	Red	Red	Green	Green	Red	Green
<u>HSE access:</u> Concerns for samplers and operators – existing workarounds are in place.	Green	Green	Green	Green	Green	Green	Green	Green	Green

Owaka WWTP Site Upgrades include:

- Inlet screen installed and commissioned in mid-2023. The screen will help reduce TSS and BOD.
- Peripheral drain installed around the Biofiltro bed in early 2024 to capture liquid leaking from walls, directing the captured liquid to Pond 2.
- The tender period for constructing and installing the new Owaka Pump Station and associated rising main to the WWTP has just closed, expected to be commissioned within the next nine months.

Stirling WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
<u>Discharge Volume Limit:</u> Compliant	Green	Green	Green	Green	Green	Green	Green	Green	Green
<u>Pond Overflow:</u> Compliant	Green	Green	Green	Green	Green	Green	Green	Green	Green
<u>Discharge Parameters:</u> Compliant	Red	Red	Green	Green	Green	Green	Green	Green	Green
<u>HSE access:</u> Concerns for samplers and operators – existing workarounds are in place.	Green	Green	Green	Green	Green	Green	Green	Green	Green

Stirling WWTP Site Upgrades include:

- Inlet screen installed and commissioned in mid-2023. The screen will help reduce TSS and BOD.
- New PLC and control philosophy, hopefully commissioned by March 2024.

Lawrence WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Discharge Volume Limit:									
Compliant									
Dissolved Oxygen:									
Compliant average									
Pond Overflow:									
Compliant									
Discharge Parameters:									
Non-compliant results.									

Lawrence WWTP Site Upgrades include:

- Inlet screen installed and commissioned in mid-2023. The screen will help reduce TSS and BOD.
- Wood shavings and worms completely replaced during February 2024.
- New aerator installed during March 2024, imparting both dissolved oxygen and circulation pattern around the cell.

Tapanui WWTP	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Discharge Volume Limit									
Daily limit breached once in Feb 24.									
Pond Overflow									
Compliant									
Discharge Parameters									
Non-compliant results.									

Tapanui Wastewater Treatment Plant									
Resource Consent Compliance Report									
RC No.2005.246; Expiry Date: 25/11/2045									
Final Effluent Sample Results 90th% Compliance (YTD)									
ORC Site Name	Date	NH -N g/m3	BOD g/m3	E.coli cfu/100mL	pH	TSS g/m3	TN g/m3	TP g/m3	
Tapanui STP Final Effluent	5/04/2023	0.7	7	170	7.1	14	19.9	6.6	
Tapanui STP Final Effluent	5/05/2023	0.2	6	50	9.1	5	19.6	6.8	
Tapanui STP Final Effluent	2/06/2023	3.0	6	10	8.3	5	26.4	4.3	
Tapanui STP Final Effluent	6/07/2023	11.7	8	Overflow	7.0	10	21.8	3.2	
Tapanui STP Final Effluent	9/08/2023	4.1	5	5	7.6	6	12.0	2.3	
Tapanui STP Final Effluent	7/09/2023	0.0	2	230	7.6	20	0.8	0.0	
Tapanui STP Final Effluent	6/10/2023	8.2	6	100	6.8	9	18.1	3.8	
Tapanui STP Final Effluent	2/11/2023	2.2	9	5	6.7	3	29.1	3.7	
Tapanui STP Final Effluent	4/12/2023	4.3	3	5	6.3	3	33.9	3.1	
Tapanui STP Final Effluent	4/01/2024	11.1	11	5	6.8	7	25.7	5.3	
Tapanui STP Final Effluent	7/02/2024	9.0	10	5	6.9	12	23.4	5.0	
Tapanui STP Final Effluent	6/03/2024	12.8	20	90	7.2	15	28.4	4.5	
90th% Limit		20	12	260	6.5-9	30	30	10	
90th%		11.6	10.9	170.0	8.2	14.9	29.0	6.5	

Tapanui WWTP Site Upgrades include:

- Inlet screen installed and commissioned in mid-2023. The screen will help reduce TSS and BOD.
- This site suffers from significant I&I flows during winter months. One known problem manhole is being repaired in March 2024 and CDC staff are discussing a relining programme for other problematic manholes in the town's sewer network.
- New aerator installed during March 2024, imparting both dissolved oxygen and circulation pattern around the cell.

Appendix A: Drinking Water Quality Assurance Rules Technical Details

Section 4.10.1.1 of the DWQARs details the requirements that must be met to provide assurance that bacteria in the water has been adequately disinfected with chlorine. The following rules make up the requirements set out by Section 4.10.1.1:

- Rule T3.2 requires the treated water to achieve a chlorine C.t. value of at least 15 min.mg/l for 95% of the day. The C.t. value is determined by the residual chlorine (mg/l) in the final water and the T10 contact time (Rule T3.4). A low result in either of these values will result in a non-compliant C.t. value.
- Rule T3.4 requires a T₁₀ disinfectant contact time of at least 5 minutes to be demonstrated. The T10 contact time is determined by the water level in the contact tanks (%) and the flow rate (l/s) of water through those tanks. A low reservoir level or high flow rate can result in a non-compliant T₁₀ contact time. The continuous monitoring report takes the lowest T10 value from each 24-hour period.
- Rule T3.3 requires the residual chlorine in the final water to remain above 0.2 mg/l for 95% of the day.
- Rule T3.5 requires the turbidity in the final water to remain below 1.0 NTU for 95% of the day.
- Rule T3.6 requires the turbidity in the final water to remain below 2.0 NTU.

Section 4.10.1.4 of the DWQARs details the requirements that must be met to provide assurance that bacteria in the water has been adequately disinfected with Ultraviolet (UV) Light. The following rules make up the requirements set out by Section 4.10.1.4:

- Rule T3.16 requires an applied UV dose of greater than 40 mJ/cm² be achieved for 95% of the day.
- Rule T3.17 requires an applied UV dose of not less than 40 mJ/cm² be achieved for any consecutive 15-minute period.
- A reduction in UV dose is caused by low lamp intensity, fouling of the lamps, poor quality water, and high flow rate (l/s) through the UV unit.

Section 4.10.2.5 to 4.10.2.7 of the DWQARs details the requirements that must be met to provide assurance that protozoa in the water has been adequately removed by the coagulation, flocculation, sedimentation, and filtration process. The following rules make up the requirements set out by Section 4.10.2.5:

- Rule T3.39 requires the turbidity in the final water to remain below 0.3 NTU for 95% of the day.
- Rule T3.40 requires the turbidity in the final water to not exceed 0.5 NTU for any consecutive 15-minute period.
- The maximum credit achieved through compliance with Section 4.10.2.5 is 3-log.

The following rules make up the requirements set out by Section 4.10.2.6:

- Rule T3.43 requires the turbidity in the final water to remain below 0.15 NTU for 95% of the day.

- Rule T3.44 requires the turbidity in the final water to not exceed 0.5 NTU for any consecutive 15-minute period.
- The maximum credit achieved through compliance with Section 4.10.2.6 is 3.5-log.

The following rules make up the requirements set out by Section 4.10.2.7:

- Rule T3.47 requires the turbidity in the final water to remain below 0.1 NTU for 95% of the day.
- Rule T3.48 requires the turbidity in the final water to not exceed 0.3 NTU for any consecutive 15-minute period.
- The maximum credit achieved through compliance with Section 4.10.2.6 is 4-log.
- Turbidity levels are susceptible to weather events that cause changes to the raw water quality, and over or under dosing of the coagulant.

Section 4.10.2.13 of the DWQARs details the requirements that must be met to provide assurance that protozoa in the water has been adequately removed by the UV disinfection. The following rules make up the requirements set out by Section 4.10.2.13:

- Rule T3.86 requires the applied UV dose to meet or exceed that required to achieve the claimed log credit for 95% of the day.
- Rule T3.87 requires an applied UV dose of not less than that required to achieve the claimed log credit for any consecutive 15-minute period.
- A reduction in UV dose is caused by low lamp intensity, fouling of the UV lamps, poor water quality, and high flow rate through the UV unit.
- Rule T3.89 requires the UV Transmission (UVT) to meet or exceed 95% of the UVT for which the reactor has been certified for at least 95% of the day.
- Rule T3.90 requires the UVT of not less than 80% of the lowest UVT for which the reactor has been certified for any consecutive 15-minute period.
- A reduction in UVT is caused by an increase in organics and dissolved compounds in the water passing through the UV unit.

Rules T3.92 and T3.93 requires the monitoring of identified Treatment Chemical Determinands that are introduced into the drinking water supply during the treatment process. Aluminium is used at most WTPs as a coagulant and must be monitored in accordance with Table 33 and Table 34 of the DWQARs.

Distribution Rule D3.19 requires the chlorine residual in the water distributed to the networks to remain above 0.2 mg/l in 85% of the analysed samples. The FAC must remain above 0.1 mg/l in every analysed sample.

Distribution Rule D3.29 requires the monitoring of *E. coli* and total coliforms in the distribution networks according to the frequency set out in Table 39 of the DWQARs. The Maximum Allowable Value (MAV) for *E. coli* is <1 CFU/100ml.