



Ref: [REDACTED]

Civic House, 110 Trafalgar Street
PO Box 645, Nelson 7040, New Zealand

15 December 2025

P (03) 546 0200
E LGOIMA@ncc.govt.nz
nelson.govt.nz



OFFICIAL INFORMATION REQUEST: COOLING TOWERS

Thank you for your official information request in which you asked for:

"...A list of all cooling towers within your jurisdiction that are currently registered and subject to testing requirements under relevant bylaws or regulations.

For each cooling tower, please provide:

- *Location (address or general area)*
- *Type of cooling tower*
- *Compliance status (including last test date and next scheduled test, if available)*
- *Details of Legionella testing results*
- *Any issues of non-compliance identified*
- *Any cleaning or disinfection notifications issued..."*

Nelson City Council has issued two resource consents for cooling towers, and a third consent is currently being processed but not yet granted. The details for the two existing cooling towers are as follows:

1. RM245319 – Health New Zealand Te Whatu Ora

- **Location:** 98 Waimea Road, Nelson Hospital
- **Type:** Hospital cooling towers
- **Compliance status:** Currently compliant
- **Last Legionella test:** Water testing completed in 2024 - See attached
- **Next scheduled test:** Due in 2026
- **Legionella testing results:** 2025 results not yet received

- **Non-compliance issues:** None identified
- **Cleaning/disinfection notifications:** None issued

2. RM145127 – Seadragon Marine Oils Limited

- **Location:** 40 Venice Place, Fish processing facility
- **Type:** Industrial cooling tower
- **Compliance status:** Currently compliant
- **Last Legionella test:** No Legionella testing undertaken
- **Next scheduled test:** Information not held
- **Legionella testing results:** Not applicable
- **Non-compliance issues:** None since odour scrubbers installed in 2020
- **Cleaning/disinfection notifications:** None issued

Some information (mobile phone number) has been redacted to protect the privacy of individuals, in reliance of section 7(2)(a) of the Local Government Official Information Act 1987 (LGOIMA). We do not consider the public interest outweighs the reason to redact this information.

If you are not satisfied with this response, you have the right to seek an investigation and review by the Ombudsman. Information about how to make a complaint is available at www.ombudsman.parliament.nz or by calling **0800 802 602**.

If you would like to discuss this response, please contact Naomi Alderson on 03 546 0200.

Yours sincerely,

Yours sincerely,



Ryno Botha
Manager Regulatory Services

Cooling Tower Water Analysis Report – Nelson Hospital

Page 1 of 1

Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	11 th December, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	500	520
7.4 - 8.9	8.6	8.6
10 - 20	15	16
2.0 - 6.0	12	12
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was high so the mV set point was reduced to lower the reserve. Ongoing high levels of bromine can have a corrosive effect within the system.

Corrective Action:

- Please continue to monitor the bromine levels and adjust as appropriate, to keep the reserve within the 2-6ppm range.

Thank you.

Tower 2 – Carrier chiller, Online

- Conductivity was correct. The controller was calibrated as it was reading low.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was high so the mV set point was reduced to lower the reserve. Ongoing high levels of bromine can have a corrosive effect within the system.

Corrective Action:

- Please continue to monitor the bromine levels and adjust as appropriate, to keep the reserve within the 2-6ppm range.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
Bioguard 1460	Primary Biocide	Dose via Aquarius controller triggering flow through bromine tablet feeder and back to cooling tower basin when ORP drops below set point
Bioguard 1430	Secondary Biocide	Aquarius controller timer-controlled dosing: On Tuesday @ 11.00am, timed to coincide with condensing pump daily run at 11:30 am (when standby system is offline).
TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – b7(2)(a) LGOMA - protected print

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	11 th September, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	480	420
7.4 - 8.9	8.4	7.4
10 - 20	15	12
2.0 - 6.0	6.0	6.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
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TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – b7(2)(a) LGOMA - protected info

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	12 th June, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	495	470
7.4 - 8.9	8.0	7.5
10 - 20	10	15
2.0 - 6.0	5.0	4.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
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TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – b7(2)(a) LGOMA - protected info

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	14 th August, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	490	420
7.4 - 8.9	8.2	7.4
10 - 20	15	16
2.0 - 6.0	5.0	4.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
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TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – 

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	15 th May, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	490	470
7.4 - 8.9	8.4	7.5
10 - 20	18	17
2.0 - 6.0	3.0	2.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct but at the bottom of the target range. The mV set point was increased slightly to lift the bromine reserve.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
Bioguard 1460	Primary Biocide	Dose via Aquarius controller triggering flow through bromine tablet feeder and back to cooling tower basin when ORP drops below set point
Bioguard 1430	Secondary Biocide	Aquarius controller timer-controlled dosing: On Tuesday @ 11.00am, timed to coincide with condensing pump daily run at 11:30 am (when standby system is offline).
TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – b7(2)(a) LGOMA - protected info

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	17 th April, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	490	400
7.4 - 8.9	8.4	7.4
10 - 20	21	12
2.0 - 6.0	5.0	2.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online- tower cleaned last week.

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was fine.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline- tower cleaned last week.

- Conductivity was correct. The controller was calibrated which will lift conductivity and associated parameters.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct but at the bottom of the target range. The mV set point was increased slightly to lift the bromine reserve.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
Bioguard 1460	Primary Biocide	Dose via Aquarius controller triggering flow through bromine tablet feeder and back to cooling tower basin when ORP drops below set point
Bioguard 1430	Secondary Biocide	Aquarius controller timer-controlled dosing: On Tuesday @ 11.00am, timed to coincide with condensing pump daily run at 11:30 am (when standby system is offline).
TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – 

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	17 th July, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	490	430
7.4 - 8.9	8.2	7.6
10 - 20	21	15
2.0 - 6.0	6.0	5.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was fine.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
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Bioguard 1430	Secondary Biocide	Aquarius controller timer-controlled dosing: On Tuesday @ 11.00am, timed to coincide with condensing pump daily run at 11:30 am (when standby system is offline).
TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – 

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	20 th March, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	530	490
7.4 - 8.9	8.2	8.4
10 - 20	12	19
2.0 - 6.0	3.0	12.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct. The mV set point was increased slightly to run the reserve higher within the target range.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was elevated. The mV set point was decreased slightly to lower the bromine reserve.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
Bioguard 1460	Primary Biocide	Dose via Aquarius controller triggering flow through bromine tablet feeder and back to cooling tower basin when ORP drops below set point
Bioguard 1430	Secondary Biocide	Aquarius controller timer-controlled dosing: On Tuesday @ 11.00am, timed to coincide with condensing pump daily run at 11:30 am (when standby system is offline).
TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – b7(2)(a) LGOMA - protected info

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	20 th November, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	500	390
7.4 - 8.9	8.6	8.7
10 - 20	15	16
2.0 - 6.0	24	19
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was very high so the mV set point was reduced to lower the reserve. Ongoing high levels of bromine can have a corrosive effect within the system.

Corrective Action:

- Please continue to monitor the bromine levels and adjust as appropriate, to keep the reserve within the 2-6ppm range.

Thank you.

Tower 2 – Carrier chiller, Online

- Conductivity was correct. The controller was calibrated as it was reading high.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was very high so the mV set point was reduced to lower the reserve. Ongoing high levels of bromine can have a corrosive effect within the system.

Corrective Action:

- Please continue to monitor the bromine levels and adjust as appropriate, to keep the reserve within the 2-6ppm range.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
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TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – 

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	23 rd October, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	480	550
7.4 - 8.9	8.4	8.9
10 - 20	9	24
2.0 - 6.0	9.0	12.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was slightly low so the dose was increased to lift the reserve.
- The Bioguard 1460 Bromine reserve was high so the mV set point was reduced to lower the reserve.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Online

- Conductivity was correct. The controller was calibrated as it was reading high.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was satisfactory.
- The Bioguard 1460 Bromine reserve was high so the mV set point was reduced to lower the reserve.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
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TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – b7(2)(a) LGOMA - protected info

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	24 th January, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	500	450
7.4 - 8.9	8.4	8.4
10 - 20	12	3
2.0 - 6.0	3.0	2.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was very low. The peristaltic dose pump had failed- a second hand pump is being sent up overnight for installation tomorrow. The secondary biocide pump was swapped for the inhibitor pump to ensure inhibitor levels remain within range. The dose pump rate was adjusted in the controller to allow for the faster biocide pump. The tower was slug dosed to elevate the inhibitor reserve.
- The Bioguard 1460 Bromine reserve was correct but at the bottom of the target range so the mV set point was increased slightly to lift the reserve.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
Bioguard 1460	Primary Biocide	Dose via Aquarius controller triggering flow through bromine tablet feeder and back to cooling tower basin when ORP drops below set point
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TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – 

Cooling Tower Water Analysis Report – Nelson Hospital

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Attention:	Philip Reardon	Plant:	Air Conditioning Cooling Towers
Report by:	Email report to Maintenance@NMDHB.govt.nz	Sample Date:	27 th February, 2024

Analysis		Raw Water
Conductivity	µS/cm	150
pH	units	7.55
Organophosphonate - OPR(OR) ₂	ppm	-
Bromine - Br	ppm	-
Approx System Volume	Litres	

Cooling Tower Water		
Key Control Parameters	Results	
	CT1	CT2
350 - 750	520	440
7.4 - 8.9	8.6	8.2
10 - 20	21	18
2.0 - 6.0	9.0	6.0
	4500L	8000L

RESULTS SUMMARY

Tower 1 – Trane chiller, Online

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was fine.
- The Bioguard 1460 Bromine reserve was elevated. The mV set point was reduced to lower the bromine reserve.

Corrective Action:

- None required.

Thank you.

Tower 2 – Carrier chiller, Offline

- Conductivity was correct.
- The pH was correct.
- The Coolguard 1560 Organophosphonate reserve was correct.
- The Bioguard 1460 Bromine reserve was correct.

Corrective Action:

- None required.

Thank you.

HPC & Legionella Laboratory bacterial test results will be provided upon completion of culture.

Dosage & Control		
Product	Function	Method
Coolguard 1560	Scale & Corrosion Inhibitor	Dosed proportionally with makeup water via pulse output water meter triggering Aquarius controller dose pump
Bioguard 1460	Primary Biocide	Dose via Aquarius controller triggering flow through bromine tablet feeder and back to cooling tower basin when ORP drops below set point
Bioguard 1430	Secondary Biocide	Aquarius controller timer-controlled dosing: On Tuesday @ 11.00am, timed to coincide with condensing pump daily run at 11:30 am (when standby system is offline).
TDS control	Minimise scale forming conditions	Aquarius Ultima controller opens solenoid valve to bleed off system water and replace with low conductivity water when system reaches conductivity set point.
Physical Cleans	Comply with standard	At least six-monthly

Representative: Dave Bradshaw – 

Certificate of Analysis

Page 1 of 1

Client:	Ionic Watercare Limited	Lab No:	3738464	SPV2
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	12-Dec-2024	
		Date Reported:	19-Dec-2024	
		Quote No:	41682	
		Order No:	DBNHDEC	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 11-Dec-2024 12:10 pm	Nelson Hospital Cooling Tower 2 11-Dec-2024 12:10 pm
Lab Number:	3738464.1	3738464.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 14-Dec-2024 and 19-Dec-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Jill Martin BSc Grad Dip LT
Senior Laboratory Technician - Microbiology

Certificate of Analysis

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Client:	Ionic Watercare Limited	Lab No:	3670213	SPV1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	12-Sep-2024	
		Date Reported:	21-Sep-2024	
		Quote No:	41682	
		Order No:	DBNH SEP	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 11-Sep-2024 12:40 pm	Nelson Hospital Cooling Tower 2 11-Sep-2024 12:40 pm
Lab Number:	3670213.1	3670213.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 15-Sep-2024 and 21-Sep-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Jill Martin BSc Grad Dip LT
Senior Laboratory Technician - Microbiology



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Client:	Ionic Watercare Limited	Lab No:	3605374	SPv1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	13-Jun-2024	
		Date Reported:	20-Jun-2024	
		Quote No:	41682	
		Order No:	DBNHJUN	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 12-Jun-2024 12:10 pm	Nelson Hospital Cooling Tower 2 12-Jun-2024 12:10 pm
Lab Number:	3605374.1	3605374.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	200
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 15-Jun-2024 and 20-Jun-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Paula Robson NDipSc
Senior Laboratory Technician - Microbiology



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Client:	Ionic Watercare Limited	Lab No:	3649760	SPv1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	15-Aug-2024	
		Date Reported:	22-Aug-2024	
		Quote No:	41682	
		Order No:	DBNH AUG	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous			
Sample Name:	Nelson Hospital Cooling Tower 1 14-Aug-2024 1:10 pm	Nelson Hospital Cooling Tower 2 14-Aug-2024 1:10 pm	
Lab Number:	3649760.1	3649760.2	
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL	< 100	< 100
Total Legionellae	cfu / mL	< 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 18-Aug-2024 and 22-Aug-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Senior Laboratory Technician - Microbiology

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Client:	Ionic Watercare Limited	Lab No:	3582486	SPV1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	16-May-2024	
		Date Reported:	23-May-2024	
		Quote No:	41682	
		Order No:	DBNHMAY	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 15-May-2024 12:30 pm	Nelson Hospital Cooling Tower 2 15-May-2024 12:30 pm
Lab Number:	3582486.1	3582486.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 18-May-2024 and 23-May-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Paula Robson NDipSc
Senior Laboratory Technician - Microbiology



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Client:	Ionic Watercare Limited	Lab No:	3547977	SPv1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	18-Apr-2024	
		Date Reported:	26-Apr-2024	
		Quote No:	41682	
		Order No:	DBNHAPR	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 17-Apr-2024 12:30 pm	Nelson Hospital Cooling Tower 2 17-Apr-2024 12:30 pm
Lab Number:	3547977.1	3547977.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 20-Apr-2024 and 26-Apr-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Jill Martin BSc Grad Dip LT
Senior Laboratory Technician - Microbiology



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Client:	Ionic Watercare Limited	Lab No:	3629802	SPV1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	18-Jul-2024	
		Date Reported:	25-Jul-2024	
		Quote No:	41682	
		Order No:	DBNH JUL	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 17-Jul-2024 12:35 pm	Nelson Hospital Cooling Tower 2 17-Jul-2024 12:35 pm
Lab Number:	3629802.1	3629802.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 20-Jul-2024 and 25-Jul-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Senior Laboratory Technician - Microbiology

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Client:	Ionic Watercare Limited	Lab No:	3508543	SPv1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	21-Mar-2024	
		Date Reported:	02-Apr-2024	
		Quote No:	41682	
		Order No:	DBNHMAR	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 20-Mar-2024 11:55 am	Nelson Hospital Cooling Tower 2 20-Mar-2024 11:55 am
Lab Number:	3508543.1	3508543.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	< 100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 23-Mar-2024 and 01-Apr-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Marisa Fonseca BSc Grad Dip LT
Client Services Manager - Christchurch Branch



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Client:	Ionic Watercare Limited	Lab No:	3721081	SPV2
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	21-Nov-2024	
		Date Reported:	28-Nov-2024	
		Quote No:	41682	
		Order No:	DBNHNOV	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 20-Nov-2024 12:05 pm	Nelson Hospital Cooling Tower 2 20-Nov-2024 12:05 pm
Lab Number:	3721081.1	3721081.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 23-Nov-2024 and 28-Nov-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Jill Martin BSc Grad Dip LT
Senior Laboratory Technician - Microbiology



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Client:	Ionic Watercare Limited	Lab No:	3700642	SPV2
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	24-Oct-2024	
		Date Reported:	02-Nov-2024	
		Quote No:	41682	
		Order No:	DBNH Oct	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous			
Sample Name:	Nelson Hospital Cooling Tower 1 23-Oct-2024 12:10 pm	Nelson Hospital Cooling Tower 2 23-Oct-2024 12:10 pm	
Lab Number:	3700642.1	3700642.2	
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL	< 100	< 100
Total Legionellae	cfu / mL	< 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 27-Oct-2024 and 31-Oct-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Paula Robson NDipSc
Senior Laboratory Technician - Microbiology

Certificate of Analysis

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Client:	Ionic Watercare Limited	Lab No:	3451880	SPv1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	25-Jan-2024	
		Date Reported:	03-Feb-2024	
		Quote No:	41682	
		Order No:	DBNHJAN	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 24-Jan-2024 12:50 pm	Nelson Hospital Cooling Tower 2 24-Jan-2024 12:50 pm
Lab Number:	3451880.1	3451880.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL < 100	100
Total Legionellae	cfu / mL < 10	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017; AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 29-Jan-2024 and 03-Feb-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Paula Robson NDipSc
Senior Laboratory Technician - Microbiology



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Certificate of Analysis

Page 1 of 1

Client:	Ionic Watercare Limited	Lab No:	3479956	SPv1
Contact:	Ionic Watercare Limited PO Box 20125 Bishopdale Christchurch 8543	Date Received:	28-Feb-2024	
		Date Reported:	06-Mar-2024	
		Quote No:	41682	
		Order No:	DBNHFEB	
		Client Reference:		
		Submitted By:	Dave Bradshaw	

Sample Type: Aqueous

Sample Name:	Nelson Hospital Cooling Tower 1 27-Feb-2024 12:04 pm	Nelson Hospital Cooling Tower 2 27-Feb-2024 12:04 pm
Lab Number:	3479956.1	3479956.2
Heterotrophic Plate Count 35°C (48 hrs)	cfu / mL	< 100
Total Legionellae	cfu / mL	< 10

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Heterotrophic Plate Count 35°C (48 hrs)	Count on HPC Petrifilm, incubated at 35°C for 40-48 hours. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. Petrifilm.	1 cfu / mL	1-2
Total Legionellae	Spread plate, count on BMPAa & GVPC agars, incubated at 36°C for 7 days, confirmation. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. AS 3896:2017 (modified); AS 3666.3:2011.	10 cfu / mL	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 02-Mar-2024 and 06-Mar-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Jill Martin BSc Grad Dip LT
Senior Laboratory Technician - Microbiology



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