



CNIDWAU
Central-North-Island-Drinking-Water-Assessment-Unit



Report on Compliance with the Drinking-water Standards for New Zealand 2005 and duties under Health Act 1956

For Period: 1/7/2018 to 30/6/2019

Drinking Water Supplies:

Ashhurst (ASH001)

Bunnythorpe (BUN001)

Longburn (LON001)

Palmerston North City (PAL001)

Water Supplier:

Palmerston North City Council

Drinking Water Assessment Unit
Central North Island Drinking Water Assessment Unit
Palmerston North Branch
MidCentral Public Health Services
Rata Building
Heretaunga Street
Palmerston North

Report Identifier

PalmerstonNorthCityCouncil_DWSNZ2005/18Compliance_030919_v1

Terminology

Not Compliant = Areas where the drinking water supply does not comply with the Drinking Water Standards for New Zealand 2005 (Revised 2018).

CEL = Central Environmental Laboratories.

CNIDWAU = Central North Island Drinking Water Assessment Unit.

CRA = Catchment Risk Assessment.

DWA = Drinking Water Assessor.

DWAU = Drinking Water Assessment Unit – Palmerston North branch.

DWO = Drinking Water Online.

DWSNZ = Drinking-water Standards for New Zealand 2005 (Revised 2018).

DWSNZ2005/08 = Drinking-water Standards for New Zealand 2005 (Revised 2008).

FAC = Free Available Chlorine.

FACE = Free Available Chlorine Equivalent. This is FAC adjusted for pH.

ID = InfrastructureData

MAV = Maximum Acceptable Value.

MoH = Ministry of Health.

NTU = Nephelometric Turbidity Units.

pdf = Portable Document Format

P2 = Priority 2 determinand.

PNCC = Palmerston North City Council.

The Act = The Health Act 1956.

UV = Ultra Violet.

WSP = Water Safety Plan.

WTP = Water Treatment Plant.

Purpose

This report provides PNCC with the results from compliance assessments carried out on their supplies under the following compliance standards and statute:

- The Drinking-water Standards for New Zealand 2005 (Revised 2008) (DWSNZ). These standards were in force from 1 July 2018 – 28 February 2019.
- The Drinking-water Standards for New Zealand 2005 (Revised 2018) (DWSNZ). These standards were in force from 1 March 2019 – 30 June 2019.
- Part 2A of the Health Act 1956 (the Act).

The assessments are based on the information provided by PNCC during the period 01 July 2018–30 June 2019 and during the 2019 Annual Survey period.

Executive Summary

Under section 69ZL of the Act DWAs are required to assess whether a drinking water supplier complies with the DWSNZ and specific sections of the Act. An assessment for the compliance period 01 July 2018 to 30 June 2019 has been undertaken by a DWA from the CNIDWAU, Palmerston North Branch, on supplies supplying populations of 100 or more people. Compliance information is derived from DWO, information held on CNIDWAU files, and any specific reports and databases nominated by the water supplier. The final results of the assessment are detailed within this report and summarised below.

This report aligns with the information entered in the MoH 'Annual Survey of Drinking-water Quality 2018-2019' which will populate the 'Annual Report on Drinking-water 2018-2019'. The MoH report will be publicly released during the 2019/2020 year.

The DWAs at the Palmerston North Branch of the CNIDWAU recognise the work of PNCC staff and water treatment plant operators throughout the 2018/19 year in working toward delivering a safe supply of drinking water to the Palmerston North communities.

The DWSNZ came into force 01 March 2019. Prior to that date the DWSNZ2005/08 was the current version of the Drinking-water Standards for New Zealand. Where a requirement has changed between the two sets of Drinking-water Standards this is identified by a reference to the 1st March date in the report.

Summary of DWSNZ Compliance

The following table summarises the overall compliance with the DWSNZ for PNCC drinking water supplies.

Treatment Plants

Supply Name	Plant Name	Bacterial Compliance	Protozoal Compliance	Cyanotoxin Compliance	Chemical Compliance	Radiological Compliance	Overall
Ashhurst (ASH001)	Ashhurst Bore Station (TP00158)	✓	✓	✓	✓	✓	✓
Bunnythorpe (BUN001)	Bunnythorpe Bore Station (TP01205)	✓	✓	✓	✓	✓	✓
Longburn (LON001)	Longburn Bore Station (TP00384)	✓	✓	✓	✓	✓	✓
Palmerston North City (PAL001)	Keith Street Bore Station (TP02023)	✓	✓	✓	✓	✓	✓
	Papaioea Park Bore Station (TP00148)	✓	✓	✓	✓	✓	✓
	Roberts Line Bore Station (TP00150)	✓	✓	✓	✓	✓ (leniency)	✓
	Takaro Bore Station (TP00149)	✓	✓	✓	✓	✓	✓
	Turitea WTP (TP00147)	✓	✓	✓	✓	✓	✓

Full compliance with the DWSNZ was achieved for the Ashhurst Bore Station (TP00158), Bunnythorpe Bore Station (TP01205), Longburn Bore Station (TP00384), Keith Street Bore Station (TP02023), Papaioea Park Bore Station (TP00148), Roberts Line Bore Station (TP00150), Takaro Bore Station (TP00149) and Turitea WTP (TP00147) for the period 1 July 2018 – 30 June 2019. Leniency was granted for Radiological compliance as the one in ten year test is overdue but results from the sampling are expected shortly.

Distribution zones

Supply Name	Distribution Zone Name	Bacterial Compliance	Cyanotoxin Compliance	Chemical Compliance	Overall
Ashhurst (ASH001)	Ashhurst (ASH001AS)	✓	✓	✓	✓
Bunnythorpe (BUN001)	Bunnythorpe (BUN001BU)	✓	✓	✓	✓
Longburn (LON001)	Longburn (LON001LO)	✓	✓	✓	✓
Palmerston North City (PAL001)	Aokautere (PAL001AO)	✓	✓	✓	✓
	Fitzherbert West (PAL001FW)	✓	✓	✓	✓
	Kelvin Grove (PAL001KG)	✓	✓	✓	✓
	Palmerston North City (PAL001PC)	✓	✓	✓	✓

Full compliance with the DWSNZ was achieved for the Ashhurst (ASH001AS), Bunnythorpe (BUN001BU), Longburn (LON001LO), Aokautere (PAL001AO), Fitzherbert West (PAL001FW), Kelvin Grove (PAL001KG) and Palmerston North City (PAL001PC) distribution zones for the period 1 July 2018 – 30 June 2019.

Assessment of Compliance with Duties of drinking-water suppliers under the Act

The duties of the water supplier under the Act have been fully met by PNCC.

Section 69S – Duty of suppliers in relation to the provision of drinking water	Met for all supplies
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This decision is based on the following – compliance meetings with PNCC staff members and assessment of the “Audit of water supplier duties under Part 2A of the Health Act 1956 during the period of 1 July 2018 – 30 June 2019” form. No reported interruptions lasting more than 8 hours from PNCC. No reported interruptions lasting more than 8 hours located in CNIDWAU records.

Section 69U – Duty to take reasonable steps to contribute to protection of source of drinking water	Met for all supplies
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This decision is based on the following – compliance meetings with PNCC staff members and assessment of the “Audit of water supplier duties under Part 2A of the Health Act 1956 during the period of 1 July 2018 – 30 June 2019” form. PNCC is working with Horizons Regional Council on a catchment risk assessment for all supplies.

Section 69Z – Duty to prepare and implement water safety plan	Met for all supplies
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This decision is based on the following – records from WSP adequacy assessments and implementations. Approved WSPs are in place for all supplies required to have them.

Under Section 69Z of the Act PNCC is required to have implemented WSPs for the following supplies:

- Ashhurst (ASH001).
- Palmerston North City (PAL001).

In addition PNCC has a WSP in place for the following small supply (a WSP is not required for small supplies under the Act):

- Bunnythorpe (BUN001).

Ashhurst: The last implementation assessment for Ashhurst was completed 18/05/2017 and was finalised 14/06/2017.

Bunnythorpe: The last implementation assessment for Bunnythorpe was completed 14/09/2018 and was finalised 11/10/2018.

Palmerston North City: The last implementation assessment for Palmerston North City was completed 11/01/2017 and was finalised 18/05/2017. A further implementation assessment is due in 2019. The WSP was originally approved 16/10/2015 therefore a revised WSP is expected to be submitted for approval by 16/08/2020 in accordance with Section 69ZC(1) of the Act.

Section 69ZD – Duty to keep records and make them available	Met for all supplies
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This decision is based on the following – compliance meetings with PNCC staff members and assessment of the “Audit of water supplier duties under Part 2A of the Health Act 1956 during the period of 1 July 2018 – 30 June 2019” form. PNCC has provided records on request and is keeping better records now regarding progress with implementation of WSPs.

Section 69ZE – Duty to investigate complaints	Met for all supplies
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This decision is based on the following – compliance meetings with PNCC staff members and assessment of the “Audit of water supplier duties under Part 2A of the Health Act 1956 during the period of 1 July 2018 – 30 June 2019” form. Previous WSP implementation assessments have shown PNCC has a system for recording and reporting on all complaints.

Summary of On-going Compliance Requirements

The summary of on-going compliance requirements is listed for each supply. These summaries represent the understanding of the DWA based on the information held in DWAU records. The demonstration of compliance or provision of evidence required to meet the DWSNZ and Health Act requirements is the responsibility of the water supplier.

Ashhurst (ASH001): Registered Population 2,800 (Minor supply)

The following are key dates for DWSNZ compliance purposes applying to the Ashhurst Bore (G00110):

- 27/7/2023 – Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). Please forward the GNS report on receipt. The previous report was dated 18/2/2019.
- 31/3/2024 – Bore water security criterion 2 to be re-assessed (bore head protection assessment required). The previous report was dated May 2019.
- 31/3/2026 – Repeat testing for radiological determinands required.

Routine *E. coli* and fluoride monitoring programmes continue in accordance with Sections 4 and 8 of the DWSNZ.

The Ashhurst WSP was approved in September 2016. A WSP Implementation visit was undertaken in May 2017 and the WSP was deemed to have been implemented. The WSP is due to be re-submitted in July 2021.

Bunnythorpe (BUN001): Registered Population 450 (Small supply)

The following are key dates for DWSNZ compliance purposes applying to the Bunnythorpe Bore (G00914):

- 31/1/2021 - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). The previous report was dated 17/5/2016.
- 31/3/2024 - Bore water security criterion 2 to be re-assessed (bore head protection assessment required). The previous report was dated May 2019.
- 31/3/2026 - Repeat testing for radiological determinands required.

Routine *E. coli* and fluoride monitoring programmes continue in accordance with Sections 4 and 8 of the DWSNZ.

The WSP for Bunnythorpe was approved in June 2017. An implementation assessment visit was undertaken in September 2018 and the WSP was deemed to have been implemented. The WSP is due to be re-submitted in April 2022.

Longburn (LON001): Registered Population 240 (Small supply)

The following are key dates for DWSNZ compliance purposes applying to the Longburn Bore (G00259):

- 31/1/2021 - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). The previous report was dated 17/5/2016.
- 31/3/2024 - Bore water security criterion 2 to be re-assessed (bore head protection assessment required). The previous report was dated May 2019.
- 31/3/2026 - Repeat testing for radiological determinands required.

Routine *E. coli* and fluoride monitoring programmes continue in accordance with Sections 4 and 8 of the DWSNZ.

The WSP for Longburn is currently in draft form.

Palmerston North City (PAL001): Registered Population 67,653 (Large supply)

The following are key dates for DWSNZ compliance purposes applying to the Palmerston North City bores:

- 12/2/2019 – Roberts Line Bore 2 (G01736) - Repeat testing for radiological determinands required. The test is overdue.

- 31/3/2019 – Papaioea Park Bore 1 (G00104), Roberts Line Bore 1 (G00106) - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). The previous report was dated 21/7/2014. These bores were reclassified non-secure on 11/9/2019. This will be reported in the 1 July 2019 – 30 June 2020 compliance period.
- 31/5/2020 – Keith Street Bore 1 (G01208), Takaro Bore (G00105), Papaioea Park Bore 2 (G01412), Roberts Line Bore 2 (G01736) - Bore water security criterion 2 to be re-assessed (bore head protection assessment required).
- 26/3/2023 – Papaioea Park Bore 2 (G01412), Roberts Line Bore 2 (G01736) - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). Please forward the GNS report on receipt. The previous report was dated 13/11/2018.
- 19/7/2023 – Takaro Bore (G00105) - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). Please forward the GNS report on receipt. The previous report was dated 18/2/2019.
- 24/7/2023 – Keith Street Bore 1 (G01208) - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). Please forward the GNS report on receipt. The previous report was dated 18/2/2019.
- 22/8/2023 – Keith Street Bore 2 (G03051) - Bore water security criterion 1 to be re-assessed (previous demonstration using residence time testing). Please forward the GNS report on receipt. The previous report was dated 3/5/2019.
- 31/3/2024 – Papaioea Park Bore 1 (G00104), Roberts Line Bore 1 (G00106), Papaioea Park Bore 3 (G03035), Keith St. Bore 2 (G03051) - Bore water security criterion 2 to be re-assessed (bore head protection assessment required). The previous report was dated May 2019.
- 31/3/2026 – Keith Street Bore 1 (G01208), Takaro bore (G00105), Papaioea Park Bore 2 (G01412), Papaioea Park Bore 1 (G00104), Roberts Line bore (G00106) - Repeat testing for radiological determinands required.
- 31/10/2028 – Papaioea Park Bore 3 (G03035), Railway Road Bore (G03043), Keith Street Bore 2 (G03051) - Repeat testing for radiological determinands required.

Routine *E. coli* and fluoride monitoring programmes must continue in accordance with Sections 4 and 8 of the DWSNZ.

The Palmerston North City WSP was approved in October 2015. An implementation visit was undertaken early in 2017 and the WSP was deemed to be implemented. The WSP is due to be re-submitted in August 2020.

Recently Registered Drinking Water Sources

- Papaioea Park Bore 3 (G03035) was registered 24/01/2018.
- Railway Road Bore (G03043) was registered 9/04/2018.
- Keith Street Bore 2 (G03051) was registered 15/04/2019.

Water from new underground sources must be tested for Radiological determinands (alpha-emitting radionuclides, beta-emitting radionuclides, and radon) before connection to the drinking-water supply. This requirement has been met for all recently registered bores. Please advise when the bores are connected and supplying water.

New bores are considered non-secure and equivalent to surface water until such time as the DWA notifies a change in status. Keith Street Bore 2 (G03051) was granted interim secure status on 4/7/2019. Water from bores complying with bore water security criterion 1 may be given interim secure status for the first 12 months of operation, provided:

- they are monitored for *E. coli* in accordance with Table 4.4 and note 1
- no *E. coli* is detected; if *E. coli* is found, see section 4.4.7.

Any of the three demonstrations within the DWSNZ for bore water security criterion 1 are available for PNCC.

E. coli has been detected in a sample from Papaioea Park Bore #3 (G03035) collected 27/5/2018 and total coliforms have been detected in multiple samples - bore water security criterion 3 has not been demonstrated for this bore.

Non-Secure Bores

- Papaioea Park Bore 1 (G00104)
- Roberts Line Bore 1 (G00106)

Under Section 4.2 Compliance criterion 1, and to regain bore water security, daily *E. coli* samples are required. Daily *E. coli* samples must be collected as agreed with the DWA (for 3 months or until such time as DWSNZ Section 4.4.2 bore water security criterion 1 has been re-established).

General Systems

PNCC was re-authorised for analyses and calibrations in December 2018. The next authorisation for PNCC to perform analyses is due for completion in 2018.

Treatment Plants

Bacterial compliance is under section 4 of the DWSNZ.

Protozoal compliance is under section 5 of the DWSNZ.

Cyanotoxin compliance is under section 7 of the DWSNZ.

Chemical compliance is under section 8 of the DWSNZ.

Radiological compliance is under section 9 of the DWSNZ.

Treatment Plant: Bacterial compliance

The following compliance information is derived from DWO. All *E. coli* and total coliform sample results are reported in DWO.

Summary of *E. coli* sampling results

Supply Name	Plant name	Pre and Post March 1 st				Post March 1 st
		Number of samples required	Number of samples collected	Number of transgressions	Compliance	Total coliform monitoring
Ashhurst (ASH001)	Ashhurst Bore Station (TP00158)	0	4	0	Compliant	Y
	Ashhurst Bore (G00110)	4	4	0	Compliant	Y
Bunnythorpe (BUN001)	Bunnythorpe Bore Station (TP01205)	0	12	0	Compliant	Y
	Bunnythorpe Bore (G00914)	4	4	0	Compliant	Y
Longburn (LON001)	Longburn Bore Station (TP00384)	0	12	0	Compliant	Y
	Longburn Bore (G00259)	4	4	0	Compliant	Y
Palmerston North City (PAL001)	Keith Street Bore Station (TP02023)	0	4	0	Compliant	Y
	Keith Street Bore 1 (G01208)	4	4	0	Compliant	Y
	Keith Street Bore 2 (G03051)	99 ¹	187	1 ²	Compliant	Y
	Papaioea Park Bore Station (TP00148)	0	4	0	Compliant	Y
	Papaioea Park Bore 1 (G00104)	4	4	0	Compliant	Y
	Papaioea Park Bore 2 (G01412)	4	4	0	Compliant	Y

Supply Name	Plant name	Pre and Post March 1 st				Post March 1 st
		Number of samples required	Number of samples collected	Number of transgressions	Compliance	Total coliform monitoring
	Papaioea Park Bore 3 (G03035) ³	0	13	0	Compliant	Y
	Railway Road Bore Station (TP04022) ³	0	0	0	Compliant	Y
	Railway Road Bore (G03043) ³	0	13	0	Compliant	Y
	Roberts Line Bore Station (TP00150)	0	4	0	Compliant	Y
	Roberts Line Bore 1 (G00106)	4	4	0	Compliant	Y
	Roberts Line Bore 2 (G01736)	4	4	0	Compliant	Y
	Takaro Bore Station (TP00149) ⁴	0	3	0	Compliant	Y
	Takaro Bore (G00105) ⁴	4	20	0	Compliant	Y
	Turitea WTP (TP00147)	0	16	0	Compliant	Y

Summary of Treatment Performance Monitoring Results

Supply Name	Plant Name	Treatment Parameter	Summary of monitoring results Pre March 1 st	Summary of monitoring results Post March 1 st	Compliance
Palmerston North City (PAL001)	Turitea WTP (TP00147)	FACE	>0.2 mg/L for more than 98% of the time achieved. (Monthly Reports provided demonstrating compliance for each day).	Chlorine C.t. value >6 for more than 98% of the time achieved. (Monthly Reports provided demonstrating compliance for each day).	Compliant
		Turbidity	<1.0 NTU for at least 95% of the time achieved. Not to exceed 2 NTU for any 3 minute period achieved.	<1.0 NTU for at least 95% of the time achieved. Not to exceed 2 NTU for any 3 minute period achieved.	Compliant

Supply Name	Plant Name	Treatment Parameter	Summary of monitoring results Pre March 1 st	Summary of monitoring results Post March 1 st	Compliance
			Monthly Reports provided demonstrating compliance for each day).	Monthly Reports provided demonstrating compliance for each day).	

Summary of compliance with sampling / analytical / remedial / operational requirements

Ashhurst (TP00158); Bunnythorpe Raymond Street (TP01205); Longburn (TP00384); Palmerston North City Keith Street (TP02023); Palmerston North City Papaioea (TP00148); Palmerston North City Roberts Line (TP00150); Palmerston North City Takaro (TP00149):

Compliance was achieved for the following criteria of the DWSNZ -

- Number of monitoring samples taken (DWSNZ Section 4.4 and Table 4.4).
- Maximum days between samples (DWSNZ Section 4.4 and Table 4.4).
- MoH recognised laboratory (DWSNZ Section 4.2.6.1).

Ashhurst (TP00158); Bunnythorpe Raymond Street (TP01205); Longburn (TP00384); Palmerston North City Keith Street (TP02023); Palmerston North City Papaioea (TP00148); Palmerston North City Roberts Line (TP00150); Palmerston North City Takaro (TP00149); Palmerston North City Turitea (TP00147):

Compliance was not assessed for the following criteria of the DWSNZ -

- Sampling sites (DWSNZ 4.4.4.1).
- Compliance with remedial action – *E. coli* not detected (DWSNZ Section 4.4.7).

Palmerston North City Turitea (TP00147):

Compliance was achieved for the following criteria of the DWSNZ -

- Requirements for continuous monitoring devices (DWSNZ Section 3.2).
- Chlorine C.t values (DWSNZ Section 4.2.2).
- Calibration and verification (DWSNZ Appendix 2 - A2.1 Introduction, A2.3 Turbidimeters, A2.4 pH, and A2.5 Free Available Chlorine).

Post 1st March 2019 *E. coli* monitoring using an enumeration method was required. PNCC met this requirement.

Treatment Plant: Protozoa compliance

The following compliance information is derived from monthly reports provided by PNCC. Copies of these reports are saved to CNIDWAU Palmerston North branch records.

Supply Name	Plant Name	Source Name	Protozoal Risk Category	Log Credit Required Pre March 1 st	Log Credit Required Post March 1 st
Ashhurst (ASH001)	Ashhurst Bore Station (TP00158)	Ashhurst Bore (G00110)	Secure bore water, no recycle	0	0
Bunnythorpe (BUN001)	Bunnythorpe Bore Station (TP01205)	Bunnythorpe Bore (G00914)	Secure bore water, no recycle	0	0

Supply Name	Plant Name	Source Name	Protozoal Risk Category	Log Credit Required Pre March 1 st	Log Credit Required Post March 1 st
Longburn (LON001)	Longburn Bore Station (TP00384)	Longburn Bore (G00259)	Secure bore water, no recycle	0	0
Palmerston North City (PAL001)	Keith Street Bore Station (TP02023)	Keith Street Bore 1 (G01208)	Secure bore water, no recycle	0	0
		Keith Street Bore 2 (G03051)	Interim Secure bore water, no recycle		
	Papaioea Park Bore Station (TP00148)	Papaioea Park Bore 1 (G00104)	Secure bore water, no recycle	0	0
		Papaioea Park Bore 2 (G01412)	Secure bore water, no recycle		
		Papaioea Park Bore 3 (G03035)	Cryptosporidium oocyst monitoring	3	3 ¹
	Railway Road Bore Station (TP04022)	Railway Road Bore (G03043) ³	Nil ²		
	Roberts Line Bore Station (TP00150)	Roberts Line Bore 1 (G00106)	Secure bore water, no recycle	0	0
		Roberts Line Bore 2 (G01736)			
	Takaro Bore Station (TP00149)	Takaro Bore (G00105)	Secure bore water, no recycle	0	0
	Turitea WTP (TP00147)	Turitea Dam (S00082)	Cryptosporidium oocyst monitoring	3	3

²Section 5.2.1.1 of the DWSNZ now allows for acknowledgement of underground attenuation processes to reduce the log credit requirements to 2 where bore water security criterion 2 has been demonstrated and bacterial compliance is met by chlorination.

²Railway Road Bore/Treatment Plant is not yet connected to the network. The absence of an assigned log credit requirement does not affect compliance.

Summary of Compliance with Risk Categorisation process

Summary of Compliance with Risk Categorisation process

Ashhurst (TP00158); Bunnythorpe Raymond Street (TP01205); Longburn (TP00384); Palmerston North City Keith Street (TP02023); Palmerston North City Papaioea (TP00148); Palmerston North City Roberts Line (TP00150); Palmerston North City Takaro (TP00149):

The correct protozoa risk categorisation process and timeframes under the DWSNZ have been adhered to.

- Secure Status for the Ashhurst Bore (G00110) was granted prior to the adoption of the DWSNZ. The status of the bore has been confirmed in previous compliance reports.
- Secure Status for the Bunnythorpe Bore (G00914) was granted on 17/6/2011.
- Secure Status for the Longburn Bore (G00259) was granted on 17/6/2011.

- Secure Status for the Keith Street Bore 1 (G02023) was granted prior to the adoption of the DWSNZ. The status of the bore has been confirmed in previous compliance reports.
- Interim Secure Status for the Keith Street Bore 2 (G03051) was granted on 4/7/2019.
- Secure Status for the Papaioea Park Bore 2 (G01412) was granted prior to the adoption of the DWSNZ. The status of the bore has been confirmed in previous compliance reports.
- Secure Status for the Roberts Line Bore 2 (G01736) was granted in December 2009.
- Secure Status for the Takaro Bore (G00105) was granted prior to the adoption of the DWSNZ. The status of the bore has been confirmed in previous compliance reports.
- Papaioea Park Bore 1 (G00104) and Roberts Line Bore 1 (G00106) were reclassified non-secure on 11/9/2019.

Palmerston North City Turitea (TP00147): The correct protozoa risk categorisation process and timeframes under the DWSNZ have been adhered to. A summary of Cryptosporidium monitoring for Turitea was received on 16/7/2019. The 3 log credit requirement remains current.

On-going Compliance for Secure Bore Water Section 4.4.6 of the DWSNZ					
Supply Name	Plant Name	Bore Name	Bore Water Security Criterion 1	Bore Water Security Criterion 2 (Bore Head Protection)	Bore Water Security Criterion 3 (E. coli Sampling)
Ashhurst (ASH001)	Ashhurst Bore Station (TP00158)	Ashhurst Bore (G00110)	Sample for residence time determination taken 24/7/2018. Next sample Due July 2023.	Bore head security assessment carried out by MWH. Report dated 13/5/2015. Next bore head security Assessment due to be submitted May 2020.	Monitoring complied throughout compliance period.
Bunnythorpe (BUN001)	Bunnythorpe Bore Station (TP01205)	Bunnythorpe Bore (G00914)	Sample for residence time determination taken 12/1/2016. Next sample due January 2021.	Bore head security assessment carried out by GHD based on an inspection by PDP. Report dated May 2019. Next bore head security Assessment due to be submitted March 2024 (based on inspection date).	Monitoring complied throughout compliance period.
Longburn (LON001)	Longburn Bore Station (TP00384)	Longburn Bore (G00259)	Sample for residence time determination taken 14/1/2016. Next sample due January 2021.	Bore head security assessment carried out by GHD based on an inspection by PDP. Report dated May 2019. Next bore head security Assessment due to be submitted March 2024 (based on inspection date).	Monitoring complied throughout compliance period.
Palmerston North City (PAL001)	Keith Street Bore Station (TP02023)	Keith Street Bore 1 (G01208)	Sample for residence time determination taken 24/7/2018. Next sample Due July 2023.	Bore head security assessment carried out by MWH. Report dated 13/5/2015. Next bore head security Assessment due to be submitted May 2020.	Monitoring complied throughout compliance period.
		Keith Street	Sample for	Bore head security	Monitoring

On-going Compliance for Secure Bore Water Section 4.4.6 of the DWSNZ						
Supply Name	Plant Name	Bore Name	Bore Water Security Criterion 1	Bore Water Security Criterion 2 (Bore Head Protection)	Bore Water Security Criterion 3 (E. coli Sampling)	
		Bore 2 (G03051) ¹	residence time determination taken 22/8/2018. Next sample Due August 2023.	assessment carried out by GHD based on an inspection by PDP. Report dated May 2019. Next bore head security Assessment due to be submitted March 2024 (based on inspection date).	complied from January 2019.	
	Papaioea Park Bore Station (TP00148)	Papaioea Park Bore 1 (G00104)	Sample for residence time determination taken 12/3/2014. The required re-sample is overdue. and the bore is no longer considered secure.	Bore head security assessment carried out by GHD based on an inspection by PDP. Report dated May 2019. Next bore head security Assessment due to be submitted March 2024 (based on inspection date).	Monitoring complied throughout compliance period.	
		Papaioea Park Bore 2 (G01412)	Sample for residence time determination taken 26/3/2018. Next sample due March 2023.	Bore head security assessment carried out by MWH. Report dated 13/5/2015. Next bore head security Assessment due to be submitted May 2020.	Monitoring complied throughout compliance period.	
		Papaioea Park Bore 3 (G03035)	Security not granted. ²			
	Railway Road Bore Station (TP04022)	Railway Road Bore (G03043)	Security not granted. ²			
	Roberts Line Bore Station (TP00150)	Roberts Line Bore 1 (G00106)	Sample for residence time determination taken 12/3/2014. The required re-sample is overdue. and the bore is no longer considered secure.	Bore head security assessment carried out by GHD based on an inspection by PDP. Report dated May 2019. Next bore head security Assessment due to be submitted March 2024 (based on inspection date).	Monitoring complied throughout compliance period.	
		Roberts Line Bore 2 (G01736)	Sample for residence time determination taken 26/3/2018. Next sample due March 2023.	Bore head security assessment carried out by MWH. Report dated 13/5/2015. Next bore head security Assessment due to be submitted May 2020.	Monitoring complied throughout compliance period.	
	Takaro Bore Station (TP00149)	Takaro Bore (G00105)	Sample for residence time determination	Bore head security assessment carried out by MWH. Report dated	Monitoring complied throughout	

On-going Compliance for Secure Bore Water Section 4.4.6 of the DWSNZ					
Supply Name	Plant Name	Bore Name	Bore Water Security Criterion 1	Bore Water Security Criterion 2 (Bore Head Protection)	Bore Water Security Criterion 3 (<i>E. coli</i> Sampling)
			taken 24/7/2018. Next sample Due July 2023.	13/5/2015. Next bore head security Assessment due to be submitted May 2020.	compliance period.

¹Keith Street Bore 2 was granted interim secure status on 4/7/2019.

²Papaioea Park Bore 3 and Railway Road Bore/Treatment Plant are not yet connected to the network. The non-secure status does not affect compliance.

Summary of Treatment Processes and associated Log Credits

Supply Name	Plant name	Treatment Process ¹	Potential Log Credit Available	Summary of Monitoring Data	Compliance with all other requirements of criterion ²	Log credit achieved pre March 1st	Log credit achieved post March 1st
Palmerston North City (PAL001)	Turitea WTP (TP00147)	Coagulation, Flocculation, Clarification, Filtration	3	Provided, compliant	Yes	3	3
		Individual Filter Performance	1	Provided, compliant	Yes	1	1

¹Treatment Process meeting DWSNZ definition of available combination of treatment technology

²Further detail provided below under log credit assessment

Summary of Log Credit Assessment

Ashhurst (TP00158); Bunnythorpe Raymond Street (TP01205); Longburn (TP00384); Palmerston North City Keith Street (TP02023); Palmerston North City Papaioea (TP00148); Palmerston North City Roberts Line (TP00150); Palmerston North City Takaro (TP00149): Secure bore water status granted. Compliance deemed to have been achieved for the period July 2017 – June 2018.

- To demonstrate continued compliance with bore water security criterion 1 residence time of PNCC bores must be reassessed according to the Ongoing Compliance for Secure Bore Water Section 4.4.6 of the DWSNZ table above. Alternatively PNCC could choose another demonstration from the DWSNZ.
- To demonstrate continued compliance with bore water security criterion 2 the bore head protection of PNCC bores must be reassessed according to the Ongoing Compliance for Secure Bore Water Section 4.4.6 of the DWSNZ table above.
- To demonstrate continued compliance with bore water security criterion 3 the bore water of all bores must be monitored for *E. coli* in accordance with Table 4.4 of the DWSNZ.

Palmerston North City Turitea (TP00147): PNCC reports continuous monitoring data through ID. DWSNZ Section 5.4.1 – turbidity data provided through ID demonstrated that compliance was achieved.

- ID does not report on these criteria separately. ID instead reports on the tighter limits under DWSNZ Section 5.8.1.

DWSNZ Section 5.8.1 – turbidity data provided through ID demonstrated that compliance was achieved.

- 0.10 NTU for more than 5% of the compliance monitoring period – ID reports stated criterion was achieved.

- 0.30 NTU for more than 1% of the compliance monitoring period – ID reports stated criterion was achieved.
- 0.50 NTU for the duration of any three-minute period – ID reports stated criterion was achieved.

DWSNZ Section 3.2 – continuous monitoring requirements – ID reports several monitoring gaps:

- 30/9/2018 – ID reports 60 missing minutes due to daylight savings. This represents full compliance.
- 5/7/2018, 30/8/2018, 23/9/2018, 15/4/2019 – monitoring gaps of two minutes or less are reported. These shutdowns cannot affect compliance. The plant was shut down for several of these monitoring gaps.
- 4/7/2019, 26/7/2018, 28/2/2018 – monitoring gaps of between three and nine minutes are reported in ID. PNCC reports the plant was shut down over the period where these gaps were identified.
- 23/9/2018, 15/2/2019 – monitoring gaps of three minutes were reported. One was due to a loss of connectivity (the operator was on site and attempting to resolve the issue) and one was due to a SCADA remote adjustment. Evidence has been provided to show compliance was not affected.
- 20/12/2019 – two monitoring gaps of 89 minutes and 3 minutes respectively were reported. This issue was reported to the DWA and followed up with a site visit. There was a power failure at the plant and the plant generator failed to power the site. As soon as the generator did not power the site the technician onsite immediately shut the plant inlet and outlet valves. As no water was produced the DWA determined compliance was achieved. All monitoring before and after the shutdown met DWSNZ requirements.

Log Credit Total (Total of all Treatment Processes) Achieved:

Ashurst Bore Station (TP00158) – 0 achieved, 0 required.
 Bunnythorpe Bore Station (TP01205) – 0 achieved, 0 required.
 Longburn Bore Station (TP00384) – 0 achieved, 0 required.
 Keith Street Bore Station (TP02023) – 0 achieved, 0 required.
 Papaioea Park Bore Station (TP00148) – 0 achieved, 0 required.
 Roberts Line Bore Station (TP00150) – 0 achieved, 0 required.
 Takaro Bore Station (TP00149) – 0 achieved, 0 required.
 Turitea WTP (TP00147) – 4 achieved, 3 required.

Treatment Plant: Cyanotoxin Compliance

This section is not applicable to groundwater supplies and those supplies not considered at risk (i.e. no management protocol required). Only Palmerston North City Turitea Dam (S00082) source water is considered at risk of cyanotoxins.

Summary of Management Protocol Compliance

Palmerston North City Turitea (TP00147): The Turitea Dam (S00082) is checked for cyanobacteria in accordance with a cyanobacterial protocol prepared by PNCC (approved pursuant to section 7.2 of the DWSNZ on 10/05/2011). Samples are collected by CEL. When cyanobacteria are identified the results are reported to PNCC. Council informs the DWA and initiates or adjusts PAC dosing as appropriate. The management protocol for Turitea Dam (S00082) was followed during the compliance period.

Priority 2 (Cyanotoxin) Compliance: Monitoring Results

No Priority 2 (P2) (Cyanotoxins) have been assigned to Palmerston North City Turitea (TP00147).

Treatment Plant: Chemical compliance

Ashhurst Bore Station (TP00158), Bunnythorpe Bore Station (TP01205), Keith St Bore Station (TP02023), Longburn Bore Station (TP00384), Papaioea Park Bore Station (TP00148), Railway Road Bore Station (TP04022), Roberts Line Bore Station (TP00150), and Takaro Bore Station (TP00149):

A Plumbosolvent water warning/public notice was provided to consumers at the specified frequency during the compliance period. The notice appeared in the Square Circular (included with the free community newspaper) and the Ratepayer's Newsletter.

Priority 2 Determinands: Monitoring Results

Supply	Plant Name	Priority 2 Determinands	No. of samples required	No. of samples taken	Transgressions	Compliance
Ashhurst (ASH001)	Ashhurst Bore Station (TP00158)	Fluoride	52	54	0	Compliant
Bunnythorpe (BUN001)	Bunnythorpe Bore Station (TP01205)	Fluoride	52	54	0	Compliant
Longburn (LON001)	Longburn Bore Station (TP00384)	Fluoride	52	54	0	Compliant
Palmerston North City (PAL001)	Keith Street Bore Station (TP02023)	Fluoride	52	54	0	Compliant
	Papaioea Park Bore Station (TP00148)	Fluoride	52	54	0	Compliant
	Roberts Line Bore Station (TP00150)	Fluoride	52	53	0	Compliant
	Takaro Bore Station (TP00149)	Fluoride	52	42 ¹	0	Compliant
	Turitea WTP (TP00147)	Fluoride	52	54	0	Compliant

¹The Takaro bore was taken off-line to be re-developed during the year (March – June 2019). At this time the Takaro Bore Station was not providing water and the consequently no fluoride samples were taken.

Priority 2 Determinands: Summary of compliance with general sampling/ remedial actions / analytical requirements

Ashhurst Bore Station (TP00158); Bunnythorpe Bore Station (TP01205); Longburn Bore Station (TP00384); Keith Street Bore Station (TP02023); Papaioea Park Bore Station (TP00148); Roberts Line Bore Station (TP00150); Takaro Bore Station (TP00149); Turitea WTP (TP00147):

Compliance was achieved for the following criteria of the DWSNZ -

- MoH recognised laboratory – CEL (DWSNZ Section 8.3.6).
- Maximum days between samples (DWSNZ Section 8.3.3 and Table 8.1).

Compliance was not assessed for the following criteria of the DWSNZ -

- Remedial action – no transgressions recorded (DWSNZ Section 8.4).

Treatment Plant: Radiological compliance

DWSNZ Section 9 is only applicable to supplies with groundwater sources.

The following compliance information is derived from monitoring results provided by PNCC. Copies of these reports are saved to CNIDWAU Palmerston North branch records.

This section applies to the following plants: Ashhurst Bore Station (TP00158), Bunnythorpe Bore Station (TP01205), Keith St Bore Station (TP02023), Longburn Bore Station (TP00384), Papaioea Park Bore Station (TP00148), Railway Road Bore Station (TP04022), Roberts Line Bore Station (TP00150), and Takaro Bore Station (TP00149). The DWSNZ Section 9.4 covers monitoring frequencies for existing bores and requirements for new bores.

Results Summary

Plant Name	Source name	Number of Samples Taken	Exceedences of MAVs	One in ten year test completed?	Compliance
Ashhurst Bore Station (TP00158)	Ashhurst Bore (G00110)	0	0	March 2016	Compliant
Bunnythorpe Bore Station (TP01205)	Bunnythorpe Bore (G00914)	0	0	March 2016	Compliant
Longburn Bore Station (TP00384)	Longburn Bore (G00259)	0	0	March 2016	Compliant
Keith Street Bore Station (TP02023)	Keith Street Bore 1 (G01208)	0	0	March 2016	Compliant
	Keith Street Bore 2 (G03051)	1	0	October 2018	Compliant
Papaioea Park Bore Station (TP00148)	Papaioea Park Bore 1 (G00104)	0	0	March 2016	Compliant
	Papaioea Park Bore 2 (G01412)	0	0	March 2016	Compliant
	Papaioea Park Bore 3 (G03035)	1	0	October 2018	Compliant
Railway Road Bore Station (TP04022)	Railway Road Bore (G03043)	1	0	October 2018	Compliant
Roberts Line Bore Station (TP00150)	Roberts Line Bore 1 (G00106)	0	0	March 2016	Compliant
	Roberts Line Bore 2 (G01736)	0	0	February 2009	Compliant (leniency)
Takaro Bore Station (TP00149)	Takaro Bore (G00105)	0	0	March 2016	Compliant

PNCC provided a test report for one bore in February 2009, eight bores in March 2016 and three bores in October 2018 (see above). All reported results met the requirements of the DWSNZ.

Roberts Line Bore #2 (G01736): The repeat test is for radiological determinands was required by end February 2019 and is overdue.

Ashhurst Bores (G00110); Raymond St New Bore (G00914); Longburn Bore (G00259); Keith Street Bore (G01208); Papaioea Park Bore (G00104); Papaioea Park Bore No.2 (G01412); Roberts Line Bore

(G00106); Takaro Bore (G00105): Radiological testing for these bores was completed 23/3/2016 and the report issued 29/3/2016. The repeat test is required by end March 2026 and every ten years thereafter.

Papaioea Park Bore #3 (G03035); Railway Road Bore (G03043); Keith Street bore #2: Radiological testing for these bores was completed 8/10/2018 and the report issued 12/10/2018. The repeat test is required by end October 2028 and every ten years thereafter.

Distribution Zones

Distribution zone bacterial compliance is under section 4.3 of the DWSNZ.

Cyanotoxin compliance is under section 7 of the DWSNZ.

Chemical compliance is under section 8 of the DWSNZ.

Distribution Zone: Bacterial compliance

The following compliance information is derived from DWO. All *E. coli* and total coliform sample results are reported in DWO.

Summary of *E. coli* sampling results

Pre and Post March 1 st						Post March 1 st
Supply Name	Distribution zone name	Number of samples required	Number of samples collected	Number of transgressions	Compliance	Total coliform monitoring
Ashhurst (ASH001)	Ashhurst (ASH001AS)	52	80	0	Compliant	Y
Bunnythorpe (BUN001)	Bunnythorpe (BUN001BU)	12	46	0	Compliant	Y
Longburn (LON001)	Longburn (LON001LO)	12	20	0	Compliant	Y
Palmerston North City (PAL001)	Aokautere (PAL001AO)	52	80	0	Compliant	Y
	Fitzherbert West (PAL001FW)	12	40	0	Compliant	Y
	Kelvin Grove (PAL001KG)	76	97	0	Compliant	Y
	Palmerston North City (PAL001PC)	184	296	0	Compliant	Y

Summary of compliance with general sampling / analytical / remedial action requirements

Ashhurst (ASH001AS); Bunnythorpe (BUN001BU); Longburn (LON001LO); Aokautere (PAL001AO);

Fitzherbert West (PAL001FW); Kelvin Grove (PAL001KG); Palmerston North City (PAL001PC):

Compliance was achieved for the following aspects of the DWSNZ:

- MoH recognised lab - CEL (DWSNZ Section 4.2.6.1).
- Minimum days of the week used for sampling (DWSNZ Section 4.3.1 and Table 4.3b).
- Maximum days between samples (DWSNZ Section 4.3.1 and Table 4.3b). Leniency was granted for PAL001KG and PAL001PC. PNCC contracts CEL to collect samples. A compliant sampling program was established but not followed. Issue was not able to be resolved once identified, but was outside of PNCC's control.

Compliance was not assessed for:

- Compliance with remedial action – no transgressions reported (DWSNZ Section 4.3.6).
- Sampling sites (DWSNZ Section 4.5.3).

Distribution Zone: Cyanotoxin Compliance

This section does not apply as cyanotoxins have not been identified as P2 for any distribution zone. It is possible that cyanotoxin may be assigned as P2 for the Aokautere (PAL001AO), Fitzherbert West (PAL001FW), and Palmerston North City (PAL001PC) zones in the future dependent of the management of cyanobacteria in the Turitea Dam (S00082). This would be triggered when the conditions under Section 7.3.1 of the DWSNZ are met.

Distribution Zone: Chemical compliance

DWSNZ Section 8 does not apply as chemical determinands have not been assigned as P2 for any distribution zones. No P2 determinands are assigned to PNCC distribution zones. No testing is required. The assessment of chemical risks for the supply are included in the PNCC WSPs.

A Plumbosolvent water warning / public notice was provided to consumers at the specified frequency during the compliance period for all PNCC supplies.

Summary of Audit Activities to Verify DWSNZ Monitoring Data

CEL provides pdf copies of all monitoring samples to the DWA. Selections of these reports are audited against information in DWO through the year. PNCC provides access to continuous monitoring data summaries through ID. Audits are carried out on-site at Turitea WTP when required.

Information to support compliance over the period 1/7/2018 – 30/6/2019 was provided on the following dates:

- 17/9/2018 – registration of Keith St bore 2.
- 8/11/2018 – general comments provided on 2019 sampling programme submitted by PNCC.
- 15/11/2018 – amendment to registration for PNCC covering naming conventions.
- 7/1/2019 – amendment to registration distribution zone population updates (significant for Kelvin Grove).

An on-site assessment for the Bunnythorpe WSP was undertaken 14/9/2018. Aspects of compliance were covered during the implementation assessment.

On-site assessments for Authorisation of analysts/calibration were held at the Turitea WTP on 3/12/2018 and 13/12/2018. The final report was sent 20/12/2018.

An on-site meeting and compliance discussion was held at Keith St Bore 2 on 19/12/2018 as a result of an *E. coli* detection. Written follow-up email provided.

Over the course of the year several emails and discussions were held regarding bore security criterion 2 and the Takaro bore. A meeting was held at the PNCC offices on 21/2/2019 regarding this bore. Bore construction (from the 1960s) was reviewed. Lead testing and additional *E. coli* testing was carried out. The bore was redeveloped.

An on-site meeting at the Turitea WTP was undertaken on 17/5/2019 to verify that the inputs for calculation of C.t. values under the DWSNZ were appropriate. A confirmatory email was sent 23/5/2019.

Concluding Statements

The results in this report relate only to the compliance of the above listed treatment plants and distribution zones.

Palmerston North City (PAL001): Please be aware that under the Health (Drinking Water) Amendment Act 2007, this supply falls into the category of a large drinking water supply. Therefore the legal requirement to comply with the Drinking Water Standards applied from 1 July 2012.

Ashhurst (ASH001): Please be aware that under the Health (Drinking Water) Amendment Act 2007, this supply falls into the category of a minor drinking water supply. Therefore the legal requirement to comply with the Drinking Water Standards applied from 1 July 2014.

Bunnythorpe (BUN001); Longburn (LON001): Please be aware that under the Health (Drinking Water) Amendment Act 2007, these supplies fall into the category of a small drinking water supply. Therefore the legal requirement to comply with the Drinking Water Standards applied from 1 July 2015.

Information in this report may be provided to the MoH at their request. With the exception of the MoH, this report shall not be reproduced without the approval of the CNIDWAU and PNCC.

Completed 11/09/2019

A handwritten signature in blue ink that reads "Peter Wood". The signature is written in a cursive style with a large, looping initial "P".


Peter Wood

Drinking Water Assessor

Central North Island Drinking Water Assessment Unit Palmerston North Branch

Assessment Report Information

Report identifier	Palmerston NorthDistrictCouncil_DWSNZ2005/18Compliance_260819_v1
Drinking Water Assessment Unit (Inspection Body)	Central North Island Drinking Water Assessment Unit (Palmerston North branch) MidCentral Health Private Bag 11 036 Palmerston North Phone 06 350 9110
Drinking Water Assessor	Peter Wood
Assessment Date	01/07/2019-11/09/2019
Description of assessment work	Assessment of Compliance with Drinking Water Standards for New Zealand 2005 (Revised 2008) for: Ashhurst (ASH001) – Ashhurst Bore (G00110); Ashhurst Water Treatment Plant (TP00158); Ashhurst Distribution Zone (ASH001AS). Bunnythorpe (BUN001) – Raymond St Bore (G00914), Bunnythorpe Raymond St Water Treatment Plant (TP01205), Bunnythorpe (BUN001BU) Longburn (LON001) – Longburn Bore (G00259), Longburn Water Treatment Plant (TP00385), Longburn (LON001LO) Palmerston North City (PAL001) – Keith St Bore (G01208), Keith St Bore #2 (G), Papaioea Park Bore (G00104), Papaioea Park Bore #2 (G01412), Papaioea Park Bore #3 (G03035), Railway Road Bore (G03043), Roberts Line Bore (G00106), Roberts Line Bore #2 (G01736), Takaro Bore (G00105), Turitea Dam (S00082); Keith St Water Treatment Plant (TP02023), Papaioea Park Water Treatment Plant (TP00148), Railway Road Treatment Plant (TP04022), Roberts Line Water Treatment Plant (TP00150), Takaro Water Treatment Plant (TP00149), Turitea Water Treatment Plant (TP00147); Aokautere Distribution Zone (PAL001AO); Fitzherbert West Distribution Zone (PAL001FW); Kelvin Grove Distribution Zone (PAL001KG); Palmerston North City Distribution Zone (PAL001PC).
Equipment Used	Drinking-Water Online (v1.0.18218.2) was used to review and report compliance data. Infrastructure Data is used to record and report compliance data. All data for this report was reviewed using ID version 1.18.
Water Supply Owner / Person Responsible	Palmerston North City Council Heather Shotter, Chief Executive Robert van Bentum, Water and Waste Services Manager Dora Luo, Water Asset Engineer Mike Monaghan, Treatment Plants Manager
Assessment method	Standard assessment as per Scope 1A Procedure Drinking-water Standards for New Zealand 2005 (Revised 2008) Drinking-water Standards for New Zealand 2005 (Revised 2018)
Documents and Information	Drinking-water Standards for New Zealand 2005 (Revised 2008) Drinking-water Standards for New Zealand 2005 (Revised 2018) Part 2A Health Act 1956
Site of Assessment	Palmerston North Public Health Unit, MidCentral DHB
Omissions from proposed assessment	Nil
Sub-contracted work	Nil
Document checked by:	Name Maree Rohleder Title Drinking Water Assessor 12/09/2019

Release of report authorised by:	Peter Wood Drinking Water Assessor  Date: 13/09/2019
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If you do not agree with the findings of this report a written appeal must be lodged with the Technical Manager, **Peter Wood, Central North Island Drinking Water Assessment Unit, C/- MidCentral Public Health Service, Private Bag 11036, Palmerston North 4442**, within 2 months of receipt of this report. The Technical Manager will arrange for a review to be undertaken using the Ministry of Health appeals procedure.