



Report on adequacy of a Drinking Water Supply's Water Safety Plan

Drinking Water Supply
Palmerston North City

Central North Island Drinking Water Assessment Unit
Palmerston North Branch
MidCentral Health
Private Bag 11-036
Palmerston North

Report Identifier
PAL001_PalmerstonNorthCity_WSPadequacy_PW_08102015_v1

Executive Summary

On 22 September 2015 the Palmerston North branch of the Central North Island Drinking Water Assessment Unit received the Water Safety Plan (WSP) for the Palmerston North Water Supply version dated 9 September 2015. The WSP was assessed following the Scope 3 national procedure: Verifying WSP Adequacy.

The WSP for the Palmerston North Water Supply has been approved. The outcome of the assessment was that the WSP met the relevant parts of Section 69Z of the Health Act 1956.

Seven recommendations have been made in this report. These are areas of the WSP where suggestions for improvement have been made. These changes can wait until the plan is next reviewed and have not affected approval of the plan.

Description of drinking water supply

The WSP reports that the city of Palmerston North is situated in the Manawatu and has a population of approximately 85,000. The current registered population on the Palmerston North City supply is 67,653. The registered population needs to be updated to take account of changes to the supply and the results of the most recent census. The supply is classified as a Large water supply under the Health Act 1956 (as amended).

The WSP reports that the primary source for the water supply to the main urban area of Palmerston North is the Turitea Stream. There are two storage dams in the Turitea Valley that provide approximately 60 days of storage at average demand. Supplementary sources are located at four bore sites at Papaioea Park, Takaro Park, Keith Street and Roberts Line.

The WSP describes an overview of the treatment of the Turitea Stream/Dam source at the Turitea Water Treatment Plant (WTP). The treatment processes described are coagulation, flocculation, clarification, rapid sand filtration, disinfection using chlorine and fluoridation as a dental health measure. However further detail within the WSP also describes pre-pH correction using soda ash, dosing with potassium permanganate as required for manganese removal, and Powdered Activated Carbon (PAC) dosing as required for taste/odour.

The WSP also describes how the groundwater is from a secure aquifer and of good quality. Bore water security has been granted for these sources. Treatment at the bore sites consists of disinfection with chlorine to remove small amounts of ammonia and manganese followed by fluoridation.

The WSP also describes how treated water from the Turitea WTP is stored in three reservoirs, a small reservoir located at the Turitea WTP and two larger reservoirs at Ngahere Park. The water supply reticulation servicing the main urban area is described as comprising approximately 481km of pipelines (with approximately 27,700 service connections), three pressure booster pumping stations and a pressure management station with booster facilities.

WSP Verification – Adequacy of Risk Assessment Methodology

The WSP has been written using the Ministry of Health (MoH) guides. The guides have been extensively referenced and the format is recognisable. Minor adaptations to the guides have been made to cover off existing preventative measures/monitoring and existing contingency. The final column in the risk tables is a proposed corrective action. The frameworks and guides referenced all appear on page 2 of the WSP.

This risk assessment methodology is accepted as appropriate for the supply.

WSP Verification – Adequacy of Risk Assessment and Risk Management

A clear statement of ownership for the supply is included in section 2.2. Section 2.6 of the WSP identifies the operational roles played by City Networks and City Enterprises. The site location is clearly identified in figure 1.

On page 1 of the WSP, the WSP reports that the “Water Safety Plan (WSP) for the Palmerston North Water Supply was prepared by Palmerston North City Council and CH2M Beca. Representatives from Operations and Maintenance, Risk Management, Planning and Development and Health & Safety have been consulted and involved in identifying risks for the WSP, including participation in a WSP workshop.” Section 3 page 10 of the WSP also references input from PNCC staff. This is sufficient evidence that those intimately familiar with the operation of the supply were involved in developing the WSP. However the WSP does not report the date of the workshop or name the people from Palmerston North City Council who were involved in the workshop. This detail is important information to include that strengthens the development of the WSP.

Recommendation 1: Include additional detail about the participation of operation staff in the development of the WSP.

There is a narrative description of the water supply, with diagrams and flow charts, beginning on page 3 through to page 9 (the whole of section 2). There is an excellent flow chart on page 7 showing the Turitea processes. No omissions were identified during the assessment. Barriers to contamination are included in Section 4 of the WSP. Recognised barriers are listed and a full description of the mechanisms used for those barriers are in place.

A full risk assessment has been completed for the supply. Appendix A contains the full Risk Information tables with the detail in place. No omissions have been identified in the Risk Information tables during this assessment. The distribution zone risk assessment is covered on pages 15 – 20 of Appendix A. The distribution risk assessment informs section 6.3 on page 20 – 23 of the WSP and appropriate improvements in the schedule.

The risk analysis in the WSP appears complete and thorough. Causes of each risk are included in the risk assessment tables (Appendix A). Each risk has been analysed using a methodology reported in section 5 of the WSP. The risk has been analysed by assessing likelihood and consequence giving an overall level of risk. The risk assessment takes into account existing preventative measures and existing contingency. Key public health concerns have been built in to the consequence assessment. A proportion of the risks were compared with the methodology to confirm the risk assessment was accurate. No issues were identified.

Palmerston North City Council reported a telemetry issue subsequent to the submission of the WSP but before the completion of this report. The WSP was assessed to determine whether the issue could be adequately addressed with the WSP in its current form. Our assessment is that the WSP could be used for this purpose (refer paragraph on contingency plans below). The WSP risk tables could be strengthened to cover telemetry.

Recommendation 2: Consider adding telemetry failure into the risk tables.

Details within the risk assessment were assessed for a proportion of the risks outlined in the risk tables in Appendix A. Existing preventative measures were found to be listed in the tables.

Existing monitoring in place to identify that an event has occurred is included in section 8. This includes the monitoring summary and the maintenance activities. All the monitoring appears to be included in Section 8.2.

Actions that will be taken if an event has occurred despite the preventative measures / controls in place are listed as “existing contingency” in the risk tables Appendix A. There is an opportunity to review and debrief actions if an existing contingency is activated; this is covered in Section 9.19. It may be appropriate to cross reference the existing contingency information with other council documents (e.g. Standard Operating Procedures and Operations Manuals).

Recommendation 3: Consider enhancing existing contingency information with cross-references to other Council documentation.

The WSP includes an improvement schedule contained in Section 7 of the WSP. There is no evidence in Public Health Service records that there are absent or ineffective contamination barriers, preventative measures, monitoring or corrective actions. The supply is fully compliant. Many of the improvements are enhancements to the supply. The table on page 1 of the WSP summarises current compliance but only lists two of the four zones of the supply.

Recommendation 4: Update the table on page one to include summary information for all four zones of the Palmerston North City supply.

Each of the improvements in the WSP has a target date to complete and a person responsible. The target date to complete generally has a year identified. There are a few improvements that have the target date to complete as “ongoing”, some that have identified a range of years (e.g. 2015-17. In our assessment we have some concerns about the use of “ongoing” in the improvement schedule. Some of the ongoing improvements effectively appear to be routine monitoring (e.g. improvement 5 – applying Council’s backflow Prevention Policy and carrying out audits). We consider this is not an improvement. Implementing the policy is an existing measure, and the audit should be considered monitoring. We suggest that all of the “ongoing” improvements be reviewed to confirm whether they are actually improvements. We also consider that improvement 22 is not an improvement. The risk has been accepted and no further action is intended. Our assessment is that the issue should be addressed in the WSP a different way.

Recommendation 5: Review the improvement schedule. Check whether ongoing improvements are actually improvements, or whether they would be better identified in another part of the WSP. Remove improvement 22 and identify that the risk has been accepted elsewhere in the WSP.

Improvements are prioritised from high to low according to risk level and from low to high on cost. A cost estimate is provided for each of the improvements on the improvement schedule. Each of the improvements includes a “reason for improvement” which is a good measure of the benefit.

There are contingency plans in place in section 9. These contingency plans cover all of the main recognised adverse events (extreme rain, volcanic activity, earthquake, and drought). The responsibility for the contingency plans is appropriately assigned to positions within Palmerston North City Council. We assessed the WSP to confirm the telemetry issue reported to the Public

Health Services could be responded to under the WSP. We consider that the issue can be responded to using contingency plan 9.18. We were pleased to confirm that the WSP could be used to respond to an unforeseen risk.

Section 10 of the WSP states that the WSP should be reviewed every five years. This meets the minimum requirement of the Act. The Water Asset Engineer is responsible for the full review. A series of bullet points is provided to guide the review. There is also a brief annual review on page 1 of the WSP. In our opinion the WSP should be a living document and updated as it is used. The WSP should be updated with changes to the roles and responsibilities as they happen. We also consider that the annual update and five year review should be identified in the same section of the document.

Recommendation 6: Treat the WSP as a living document and update accordingly. Include the brief annual review in Section 10 with the five year review.

With the completion of this report the WSP will have an approval under legislation. It is appropriate for the WSP to include reporting requirements through to Council that demonstrates the legal requirement to implement the WSP is being met. Regular reports could be included as part of the Long Term Plan/annual plan process.

Recommendation 7: Consider reporting requirements for the WSP.

The WSP reports that the Turitea WTP has an ISO9001/14000 Series Quality Assurance System which has maintained AS/NZS ISO 9001:2008 registration. A copy of the certificate was requested in the past. An updated request will be forwarded separately.

Decision

The WSP for Palmerston North Water Supply (PAL001) has been approved.

Under the Health Act, this supply falls into the category of a large drinking water supply. The Act requires that the WSP be prepared by 1 July 2012 and then allows an additional 12 months to obtain approval (Section 69Z(8)). An approved WSP has been in place for Palmerston North City over the last 5 years.

It is expected that the water supplier begin to implement this WSP within one month. Please be aware that if significant changes are made to either the processes used to treat water or to the raw water source, the WSP must be revised and re-submitted for approval by a drinking water assessor.

These results relate only to Keith Street Bore G01208; Papaioea Park Bore G00104; Papaioea Park Bore #2 G01412; Roberts Line Bore G00106; Roberts Line Bore #2 G01736; Takaro Bore - G00105; Turitea Dam S00082.

These results relate only to Keith St WTP TP02023; Papaioea Park WTP TP00148; Roberts Line WTP TP00150; Takaro WTP TP00149; Turitea WTP TP00147 treatment plants.

These results relate only to Aokautere Distribution Zone PAL001AO; Fitzherbert West Distribution Zone PAL001FW; Kelvin Grove Distribution Zone PAL001KG; Palmerston North City Distribution Zone PAL001PC distribution zones.

Information in this report may be provided to the Ministry of Health at their request. With the exception of the Ministry of Health, this report shall not be reproduced without the approval of the Central North Island Drinking Water Assessment Unit and Palmerston North City Council.

Attachments

None

Completed **8/10/2015**

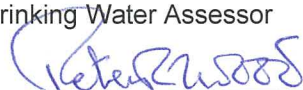


Peter Wood

Drinking Water Assessor

Central North Island Drinking Water Assessment Unit, (Palmerston North branch)

Assessment Report Information

Report identifier	PAL001_PalmerstonNorthCity_WSPadequacy_PW_08102015_v1
Drinking Water Assessment Unit (Inspection Body)	Central North Island Drinking Water Assessment Unit Public Health Unit MidCentral Health Private Bag 11-036 Palmerston North 06 350 9110
Drinking Water Assessor	Peter Wood
Assessment Date	8/10/2015
Description of assessment work	Assessment of adequacy of Water Safety Plan for Palmerston North City PAL001 <i>Sources</i> – Turitea Dam - S00082; Keith Street Bore - G01208; Papaioea Park Bore - G00104; Papaioea Park Bore #2 - G01412; Roberts Line Bore - G00106; Roberts Line Bore #2 - G01736; Takaro Bore - G00105; <i>Treatment Plants</i> – Turitea Water Treatment Plant - TP00147; Keith St - TP02023; Papaioea Park - TP00148; Roberts Line - TP00150; Takaro - TP00149; <i>Distribution Zones</i> – Palmerston North City - PAL001PC; Aokautere - PAL001AO; Fitzherbert West - PAL001FW; Kelvin Grove - PAL001KG)
Equipment Used	Water in New Zealand (WINZ) version 7.0.02.118 and https://app.infrastructuredata.nz/ was used to review compliance data.
Water Supply Owner / Person Responsible	Palmerston North City Council Dora Luo Water Asset Engineer
Assessment method	Standard assessment as per Scope Procedure 3 Standard specified in Health Act 1956
Documents and Information	Drinking Water Standards for New Zealand 2005 (Revised 2008) Water Safety Plan for the Palmerston North Water Supply 9 September 2015
Site of Assessment	Palmerston North Public Health Unit
Omissions from proposed assessment	Nil
Sub-contracted work	Nil
Document checked by:	Grant King Drinking Water Assessor 12/10/2015
Release of report authorised by:	Peter Wood IANZ Accredited Drinking Water Assessor Signature:  Date: 16/10/2015

If you do not agree with the findings of this report a written appeal must be lodged with the Technical Manager, Central North Island Drinking water Assessment Unit, Public Health Unit, Napier Health Centre, P.O. Box 447, Napier 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.