

# **Drinking Water Quality Management Plan (DWQMP) report**

2017/2018

## **FLINDERS SHIRE COUNCIL**

SPID: 51

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## Glossary of terms

|                |  |
|----------------|--|
| ADWG 2004      | Australian Drinking Water Guidelines (2004). Published by the National Health and Medical Research Council of Australia                        |
| ADWG 2011      | Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia                        |
| <i>E. coli</i> | <i>Escherichia coli</i> , a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk |
| HACCP          | Hazard Analysis and Critical Control Points certification for protecting drinking water quality  |
| mg/L           | Milligrams per litre   |
| NTU            | Nephelometric Turbidity Units  |
| MPN/100mL      | Most probable number per 100 millilitres   |
| CFU/100mL      | Colony forming units per 100 millilitres   |
| <              | Less than  |
| >              | Greater than   |

## 1. Introduction

This report documents the performance of Flinders Shire Council's drinking water service with respect to water quality and performance in implementing the actions detailed in the drinking water quality management plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act).

The report assists the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with and provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

This template has been prepared in accordance with the *Water Industry Regulatory Reform – drinking water quality management plan report factsheet* published by the Department of Energy and Water Supply, Queensland, accessible at [www.dews.qld.gov.au](http://www.dews.qld.gov.au).

## 2. Actions taken to implement the DWQMP

Implementation of the DWQMP carried on throughout the 2017/2018 financial year.

### **Progress in implementing the risk management improvement program**

Flinders Shire Council's DWQMP includes a Risk Management Improvement Program (RMIP) which aims to manage any unacceptable residual risks identified by the hazard/risk assessment and improve parts of the Plan where deficiencies in information did not allow the criteria to be completely and accurately addressed.

The RMIP identifies areas where Council could implement changes to manage hazards/risks and uncertainties. The program outlines interim, short-term and long-term actions for Council to implement in order to manage the identified hazards/risks and uncertainties.

Appendix B contains an excerpt from the RMIP table in Council's DWQMP and addresses the actions in the DWQMP that have been completed, currently in progress or have been deferred.

### **Revisions made to the operational monitoring program to assist in maintaining the compliance with water quality criteria<sup>1</sup> in verification monitoring.**

Revisions have been made to the operational monitoring program.

Both Critical and Alarm limits as well as the corresponding Responses were added to the Operational monitoring program. Weekly in-house monitoring of turbidity at the outlet of the Torrens Creek tanks was also added.

## 3. Compliance with water quality criteria for drinking water

The water quality criteria means health guideline values in the most current Australian Drinking Water Guidelines, as well as the standards in the Public Health Regulation 2005.

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<sup>1</sup> Refer to *Water Quality and Reporting Guideline for a Drinking Water Service for the water quality criteria for drinking water*.

## 4. Notifications to the Regulator under sections 102 and 102A of the Act

This financial year there were four notifications to the Regulator; all were for detection of parameters with no Health Guideline.

Cobalt, Strontium and Thallium and Vanadium were detected at Torrens Creek while Strontium was detected at Prairie and Hughenden.

The detection of these parameters was discussed with Qld Health who have provided Council with advice and guideline values for these parameters.

The general advice was that detections of Strontium and Cobalt need not be reported and that a Guideline value for Thallium is provided by the USEPA (0.0005 mg/L). The guideline value for Vanadium is based on the Californian EPA's value of 0.015mg/L. Utilisation of these International guidelines is in line with section 6.5 of the Australian Drinking Water Guidelines which states:

For some chemical substances, an Australian Drinking Water Guideline value may not be available. It is recommended that water suppliers seek advice from the appropriate state or territory health regulatory agency when chemicals that do not have a guideline value in the ADWG are detected in drinking water. In such cases, interim water quality advice may be obtained from alternative sources.

The following list details a hierarchy of documents in which national and international drinking water guideline values can be found. The sources are listed in order of preference of acceptance, based on recommendations from the NHMRC and the Environmental Health Committee (enHealth) in relation to risk assessment of environmental hazards (enHealth 2012). The recommendations are derived from the relevance to the Australian context and the methodologies used to calculate guideline values. Starting at the top of the hierarchy, the most recent final version of the document should be consulted until a suitable interim guideline value is identified:

- Australian Guidelines for Water Recycling – Phase 2: Augmentation of Drinking Water Supplies (Environment Protection and Heritage Council (EPHC), 2008)
- WHO Guidelines for Drinking-Water Quality, fourth edition (WHO, 2011)
- Drinking Water Standards for New Zealand, New Zealand Ministry of Health, New Zealand (New Zealand Ministry of Health, 2008)
- Guidelines for Canadian Drinking Water Quality (Health Canada, 2014)
- Health Advisories for Drinking Water Contaminants (United States Environmental Protection Agency (US EPA) Office of Water, various dates)
- Drinking Water Contaminants Lists (US EPA Office of Water, 2007)
- Public Health Goal for Chemical Substances in Drinking Water (Office of Environmental Health Hazard Assessment, California Environmental Protection Agency 2014)".

As a result of the advice from Qld Health, the detections of cobalt and strontium have not been regarded as incidents.

## 5. Customer complaints related to water quality

Flinders Shire Council is required to report on the number of complaints, general details of complaints, and the responses undertaken.

Throughout the year the following complaints about water quality were received:

**Table 1 - complaints about water quality.**

|               | Suspected Illness | Discoloured water | Taste and odour | Total |
|---------------|-------------------|-------------------|-----------------|-------|
| Hughenden     | 0                 | 0                 | 3               | 3     |
| Prairie       | 0                 | 0                 | 0               | 0     |
| Torrens Creek | 0                 | 0                 | 0               | 0     |

### **Suspected Illness**

During 2017/2018 there were no complaints regarding illness arising from the water supply system..

### **Taste and Odour**

Three complaints were received in relation to the water smelling and tasting like rotten eggs. The area in question is situated on a Dead end Main; tests in the area also show that Sulphate levels are between 110 – 120 mg/L. Plumbers having flushing the mains regularly so that the water remains oxygenated.

## 6. DWQMP review outcomes

The amended DWQMP was approved on the 01/03/2018. Pursuant to section 99(2) b and 106 of the Act, regular reviews of the approved amended Drinking Water Quality Management Plan must be undertaken at specified intervals. The plan is to be reviewed by 31 May 2020.

## 7. DWQMP audit

Pursuant to section 99(2) C of the Act, regular audits of the approved DWQMP are required at specific intervals. The second audit of Flinders Shire's DWQMP must be completed by 31 May 2021.. Further audits are required to be completed every four (4) years from that date.

## Appendix A – Summary of compliance with water quality criteria

The results from the verification monitoring program have been compared against the levels of the water quality criteria specified by the Regulator in the *Water Quality and Reporting Guideline for a Drinking Water Service*.

**Table 2 - Verification monitoring results – Hughenden Source Water (raw water)**

| Parameter  | Units | Frequency of sampling | Total No. samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min     | Max     | Average (Mean) | Limit of reporting | Laboratory name        |
|------------|-------|-----------------------|-----------------------------|--|---|---------|---------|----------------|--------------------|------------------------|
| Aluminium  | mg/L  | 4 times a year        | 15                          | 2  | 0   | <0.003  | <0.005  | 0.003267       | 0.003              | FSS Health Support Qld |
| Antimony   | mg/L  | 4 times a year        | 15                          | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld |
| Arsenic    | mg/L  | 4 times a year        | 15                          | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld |
| Barium     | mg/L  | 4 times a year        | 15                          | 15   | 0   | 0.034   | 0.084   | 0.058733       | 0.0001             | FSS Health Support Qld |
| Beryllium  | mg/L  | 4 times a year        | 15                          | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld |
| Boron      | mg/L  | 4 times a year        | 15                          | 15   | 0   | 0.062   | 0.083   | 0.070867       | 0.0001             | FSS Health Support Qld |
| Cadmium    | mg/L  | 4 times a year        | 15                          | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld |
| Chromium   | mg/L  | 4 times a year        | 15                          | 1  | 0   | <0.0001 | 0.0008  | 0.000147       | 0.0001             | FSS Health Support Qld |
| Cobalt     | mg/L  | 4 times a year        | 15                          | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld |
| Copper     | mg/L  | 4 times a year        | 15                          | 9  | 0   | <0.001  | 0.071   | 0.007867       | 0.001              | FSS Health Support Qld |
| Iron       | mg/L  | 4 times a year        | 15                          | 15   | 0   | 0.008   | 0.64    | 0.139          | 0.005              | FSS Health Support Qld |
| Lead       | mg/L  | 4 times a year        | 15                          | 10   | 0   | <0.0001 | 0.0047  | 0.000753       | 0.0001             | FSS Health Support Qld |
| Manganese  | mg/L  | 4 times a year        | 15                          | 15   | 0   | 0.0025  | 0.029   | 0.018347       | 0.0001             | FSS Health Support Qld |
| Molybdenum | mg/L  | 4 times a year        | 15                          | 4  | 0   | <0.0001 | 0.0003  | 0.00014        | 0.0001             | FSS Health Support Qld |
| Nickel     | mg/L  | 4 times a year        | 15                          | 5  | 0   | <0.0001 | 0.0094  | 0.00098        | 0.0001             | FSS Health Support Qld |
| Selenium   | mg/L  | 4 times a year        | 15                          | 3  | 0   | <0.0001 | 0.0015  | 0.000233       | 0.0001             | FSS Health             |

|                     |       |                |    |    |   |         |         |          |        |                        |
|---------------------|-------|----------------|----|----|---|---------|---------|----------|--------|------------------------|
|                     |       |                |    |    |   |         |         |          |        | Support Qld            |
| Silver              | mg/L  | 4 times a year | 15 | 0  | 0 | 0.001   | 0.001   | 0.001    | 0.001  | FSS Health Support Qld |
| Strontium           | mg/L  | 4 times a year | 15 | 15 | 0 | 0.062   | 0.12    | 0.100533 | 0.0001 | FSS Health Support Qld |
| Thallium            | mg/L  | 4 times a year | 15 | 0  | 0 | <0.0001 | 0.0001  | 0.0001   | 0.0001 | FSS Health Support Qld |
| Tin                 | mg/L  | 4 times a year | 15 | 1  | 0 | <0.0001 | 0.0014  | 0.000187 | 0.0001 | FSS Health Support Qld |
| Titanium            | mg/L  | 4 times a year | 15 | 0  | 0 | <0.001  | <0.001  | <0.001   | 0.001  | FSS Health Support Qld |
| Uranium             | mg/L  | 4 times a year | 15 | 0  | 0 | <0.0001 | <0.0001 | <0.001   | 0.0001 | FSS Health Support Qld |
| Vanadium            | mg/L  | 4 times a year | 15 | 1  | 0 | <0.0001 | <0.0001 | <0.0001  | 0.0001 | FSS Health Support Qld |
| Zinc                | mg/L  | 4 times a year | 15 | 15 | 0 | 0.002   | 0.14    | 0.023733 | 0.001  | FSS Health Support Qld |
| Conductivity        | mg/L  | 4 times a year | 15 | 15 | 0 | 826     | 1160    | 963.6667 |        | FSS Health Support Qld |
| pH                  |       | 4 times a year | 15 | 15 | 0 | 7.86    | 8.39    | 8.195333 |        | FSS Health Support Qld |
| Total Hardness      | mg/L  | 4 times a year | 15 | 15 | 0 | 8       | 24      | 15.08667 |        | FSS Health Support Qld |
| Temporary Hardness  | mg/L  | 4 times a year | 15 | 15 | 0 | 8       | 24      | 15.08667 |        | FSS Health Support Qld |
| Alkalinity          | mg/L  | 4 times a year | 15 | 15 | 0 | 188     | 218     | 204.3333 |        | FSS Health Support Qld |
| Residual Alkalinity | mg/L  | 4 times a year | 15 | 15 | 0 | 3.3     | 4       | 3.78     |        | FSS Health Support Qld |
| Silica              | mg/L  | 4 times a year | 15 | 15 | 0 | 13      | 18      | 15.46667 |        | FSS Health Support Qld |
| TDI                 | mg/L  | 4 times a year | 15 | 15 | 0 | 587     | 789     | 673.6    |        | FSS Health Support Qld |
| TDS                 | mg/L  | 4 times a year | 15 | 15 | 0 | 478     | 5356    | 886.3333 |        | FSS Health Support Qld |
| True Colour         | Hazen | 4 times a year | 15 | 15 | 0 | 1       | 16      | 2.333333 |        | FSS Health Support Qld |
| Turbidity           | NTU   | 4 times a year | 15 | 15 | 0 | 1       | 4       | 1.333333 |        | FSS Health Support Qld |
| Sodium              | mg/L  | 4 times a year | 15 | 15 | 0 | 180     | 250     | 208.6667 |        | FSS Health Support Qld |
| Potassium           | mg/L  | 4 times a year | 15 | 15 | 0 | 1.7     | 2.7     | 2.193333 |        | FSS Health             |

|                             |      |                |    |    |   |         |             |          |   |                        |
|-----------------------------|------|----------------|----|----|---|---------|-------------|----------|---|------------------------|
|                             |      |                |    |    |   |         |             |          |   | Support Qld            |
| Calcium                     | mg/L | 4 times a year | 15 | 15 | 0 | 2.4     | 6.8         | 4.486667 |   | FSS Health Support Qld |
| Magnesium                   | mg/L | 4 times a year | 15 | 15 | 0 | 0.5     | 1.6         | 0.94     |   | FSS Health Support Qld |
| Hydrogen                    | mg/L | 4 times a year | 15 | 15 | 0 | 0       | 0           | 0        |   | FSS Health Support Qld |
| Bicarbonate                 | mg/L | 4 times a year | 15 | 15 | 0 | 222     | 262         | 243.8    |   | FSS Health Support Qld |
| Carbonate                   | mg/L | 4 times a year | 15 | 15 | 0 | 1.2     | 3.7         | 2.549333 |   | FSS Health Support Qld |
| Hydroxide                   | mg/L | 4 times a year | 15 | 0  | 0 | 0       | 0           | 0        |   | FSS Health Support Qld |
| Chloride                    | mg/L | 4 times a year | 15 | 15 | 0 | 91      | 130         | 103.0667 |   | FSS Health Support Qld |
| Fluoride                    | mg/L | 4 times a year | 15 | 15 | 0 | 0.09    | 0.14        | 0.118    |   | FSS Health Support Qld |
| Nitrate                     | mg/L | 4 times a year | 15 | 15 | 0 | 0.5     | 1           | 0.633333 |   | FSS Health Support Qld |
| Sulphate                    | mg/L | 4 times a year | 15 | 15 | 0 | 61      | 160         | 108.4667 |   | FSS Health Support Qld |
| Gross Alpha Activity        | Bq/L | Twice a year   | 2  | 2  | 0 | <0.0300 | 0.06 ± 0.05 | 0.03875  | - | FSS Health Support Qld |
| K40 Corrected Beta Activity | Bq/L | Twice a year   | 2  | 2  | 0 | <0.07   | 0.1 ± 0.1   | 0.15375  | - | FSS Health Support Qld |



**Table 3: Verification Monitoring for Pesticides - Hughenden Source water (raw water)**

| ParameterER                          | Units | Frequency of Sampling | Total No. Samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min  | Max  | Mean | Limit of reporting | Laboratory name        |
|--------------------------------------|-------|-----------------------|-----------------------------|--|---|------|------|------|--------------------|------------------------|
| Aldrin                               | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Dieldrin                             | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Total Aldrin & Dieldrin <sup>2</sup> | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.4 | <0.4 | <0.4 | 0.2                | FSS Health Support Qld |
| Chlordane cis                        | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Chlordane trans                      | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Total Chlordane                      | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.4 | <0.4 | <0.4 | 0.2                | FSS Health Support Qld |
| DDD (pp)                             | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| DDE (pp)                             | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| DDT(op)                              | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| DDT (pp)                             | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Total DDT                            | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.8 | <0.8 | <0.8 | 0.4                | FSS Health Support Qld |
| Dicofol                              | µg/L  | 4 times a year        | 19                          | 0  | 0   | <2.9 | <2.9 | <2.9 | 1.5                | FSS Health Support Qld |
| a-Endosulfan                         | µg/L  | 4 times a year        | 19                          | 0  | 0   | <1   | <1   | <1   | 0.2                | FSS Health Support Qld |
| b-Endosulfan                         | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.2                | FSS Health Support Qld |
| Endosulfan Sulfate                   | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Total Endosulfan                     | µg/L  | 4 times a year        | 19                          | 0  | 0   | <1.4 | <1.4 | <1.4 | 0.6                | FSS Health Support Qld |
| Heptachlor                           | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Heptachlor Epoxide                   | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.2 | <0.2 | <0.2 | 0.1                | FSS Health Support Qld |
| Total Heptachlor <sup>3</sup>        | µg/L  | 4 times a year        | 19                          | 0  | 0   | <0.4 | <0.4 | <0.4 | 0.2                | FSS Health Support Qld |

<sup>2</sup> Reporting limits are based not on instrument sensitivities, but on sample reproducibility. In the presence of potential interferences etc. which occur in natural waters we set reporting limits where we are confident in the reproducibility of the reported value - the instrument detection limit is often a factor of 10 or more lower.

For the organochlorine pesticides, they have been banned for a number of decades and we do not often see any such residues in the environment. If any such residues were detected we would confirm their presence and quantification via an alternative detection method. Whilst we are reporting a value of < 0.4 ug/L for Total Aldrin & Dieldrin and for Total Heptachlor, the individual components are reported at a lower level, and we can detect their presence well below the guideline values.

If any residues were detected we can confirm down to 0.06 ug/L for each of these total values.

<sup>3</sup> Reporting limits are based not on instrument sensitivities, but on sample reproducibility. In the presence of potential interferences etc. which occur in natural waters we set reporting limits where we are confident in the reproducibility of the reported value - the instrument detection limit is often a factor of 10 or more lower.

|                      |      |                |    |   |   |      |      |              |     |                        |
|----------------------|------|----------------|----|---|---|------|------|--------------|-----|------------------------|
| Lindane (g-HCH)      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Methoxychlor         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Oxychlorodane        | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Azinphos-methyl      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Bromophos-ethyl      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Carbophenothion      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Chlorfenvinphos      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Chlorpyrifos         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Diazinon             | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Dichlorvos           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Dimethoate           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Omethoate            | µg/L | 4 times a year | 19 | 0 | 0 | <0.4 | <0.4 | <0.4         | 0.2 | FSS Health Support Qld |
| Total Dimethoate     | µg/L | 4 times a year | 19 | 0 | 0 | <0.6 | <0.6 | <0.6         | 0.3 | FSS Health Support Qld |
| Disulfoton           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Ethion               | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Ethoprophos          | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenamiphos           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenchlorphos         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenitrothion         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenthion (methyl)    | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Malathion (Maldison) | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Methidathion         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Mevinphos            | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Monocrotophos        | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Parathion (ethyl)    | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Parathion-methyl     | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Pirimiphos-methyl    | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Profenofos           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Pyrazophos           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Sulprofos            | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Temephos             | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.4 | <0.242105263 | 0.1 | FSS Health Support Qld |
| Terbufos             | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Tetrachlorvinphos    | µg/L | 4 times a year | 19 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |

For the organochlorine pesticides, they have been banned for a number of decades and we do not often see any such residues in the environment. If any such residues were detected we would confirm their presence and quantification via an alternative detection method. Whilst we are reporting a value of < 0.4 ug/L for Total Aldrin & Dieldrin and for Total Heptachlor, the individual components are reported at a lower level, and we can detect their presence well below the guideline values.

If any residues were detected we can confirm down to 0.06 ug/L for each of these total values.

|                    |      |                |    |   |   |       |       |              |      |                        |
|--------------------|------|----------------|----|---|---|-------|-------|--------------|------|------------------------|
| Ametryn            | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Atrazine           | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Bromacil           | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Diuron             | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Fluometuron        | µg/L | 4 times a year | 19 | 0 | 0 | <0.04 | <0.04 | <0.04        | 0.02 | FSS Health Support Qld |
| Hexazinone         | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.04 | <0.027368421 | 0.01 | FSS Health Support Qld |
| Metolachlor        | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Simazine           | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Terbutryn          | µg/L | 4 times a year | 19 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Amitraz            | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Diclofop-methyl    | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Haloxypop-2-etotyl | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Haloxypop-methyl   | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Metribuzin         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Molinate           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Pendimethalin      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Propanil           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Propazine          | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Terbuthylazine     | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Trifluralin        | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Captan             | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Carbaryl           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Fipronil           | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Piperonyl Butoxide | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Pirimicarb         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.4  | <0.368421053 | 0.2  | FSS Health Support Qld |
| Propargite         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Propiconazole      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Triadimefon        | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Total Triadimefon  | µg/L | 4 times a year | 19 | 0 | 0 | <0.6  | <0.6  | <0.6         | 0.3  | FSS Health Support Qld |
| Bioresmethrin      | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Cyfluthrin         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Cypermethrin       | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.5  | FSS Health Support Qld |
| Deltamethrin       | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Fenvalerate        | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  |                        |
| Permethrin         | µg/L | 4 times a year | 19 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  |                        |

**Table 4: Verification monitoring and operational results - Hughenden Reticulation**

| Parameter  | Units | Frequency of sampling | Total No. samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min      | Max     | Average (Mean) | Limit of reporting | Laboratory name                   |
|------------|-------|-----------------------|-----------------------------|--|---|----------|---------|----------------|--------------------|-----------------------------------|
| Aluminium  | mg/L  | 4 times a year        | 23                          | 6  | 0   | 0.003    | 0.056   | 0.007348       | 0.003              | FSS Health Support Qld            |
| Antimony   | mg/L  | 4 times a year        | 23                          | 0  | 0   | <0.0001  | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Arsenic    | mg/L  | 4 times a year        | 23                          | 3  | 0   | <0.0001  | 0.0004  | 0.000139       | 0.0001             | FSS Health Support Qld            |
| Barium     | mg/L  | 4 times a year        | 23                          | 16   | 0   | 0.046    | 0.11    | 0.061696       | 0.0001             | FSS Health Support Qld            |
| Beryllium  | mg/L  | 4 times a year        | 23                          | 0  | 0   | <0.0001  | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Boron      | mg/L  | 4 times a year        | 23                          | 23   | 0   | 0.031    | 0.081   | 0.067957       | 0.0001             | FSS Health Support Qld            |
| Cadmium    | mg/L  | 4 times a year        | 23                          | 1  | 0   | <0.0001  | 0.0002  | 0.000104       | 0.0001             | FSS Health Support Qld            |
| Chromium   | mg/L  | 4 times a year        | 23                          | 2  | 0   | <0.0001  | 0.0006  | 0.00013        | 0.0001             | FSS Health Support Qld            |
| Cobalt     | mg/L  | 4 times a year        | 23                          | 0  | 0   | <0.0001  | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Copper     | mg/L  | 4 times a year        | 23                          | 14   | 0   | <0.001   | 0.051   | 0.008174       | 0.001              | FSS Health Support Qld            |
| Iron       | mg/L  | 4 times a year        | 23                          | 23   | 0   | 0.005    | 0.078   | 0.024739       | 0.005              | FSS Health Support Qld            |
| Lead       | mg/L  | 4 times a year        | 23                          | 11   | 0   | <0.0001  | 0.001   | 0.000278       | 0.0001             | FSS Health Support Qld            |
| Manganese  | mg/L  | 4 times a year        | 23                          | 23   | 0   | 0.0017   | 0.1     | 0.015209       | 0.0001             | FSS Health Support Qld            |
| Molybdenum | mg/L  | 4 times a year        | 23                          | 6  | 0   | 0.000543 | <0.0001 | 0.008          | 0.0001             | FSS Health Support Qld            |
| Nickel     | mg/L  | 4 times a year        | 23                          | 4  | 0   | 0.00023  | <0.0001 | 0.0017         | 0.0001             | FSS Health Support Qld & In-house |
| Selenium   | mg/L  | 4 times a year        | 23                          | 0  | 0   | <0.0001  | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Silver     | mg/L  | 4 times a year        | 23                          | 0  | 0   | <0.001   | <0.001  | <0.001         | 0.001              | FSS Health Support Qld            |
| Strontium  | mg/L  | 4 times a year        | 23                          | 23   | 0   | 0.118478 | 0.09    | 0.24           | 0.0001             | FSS Health Support Qld            |
| Thallium   | mg/L  | 4 times a year        | 23                          | 0  | 0   | <0.0001  | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |

|                     |       |                |    |    |   |          |         |         |        |                        |
|---------------------|-------|----------------|----|----|---|----------|---------|---------|--------|------------------------|
| Tin                 | mg/L  | 4 times a year | 23 | 5  | 0 | 0.000152 | <0.0001 | 0.0006  | 0.0001 | FSS Health Support Qld |
| Titanium            | mg/L  | 4 times a year | 23 | 0  | 0 | <0.001   | <0.001  | <0.001  | 0.001  | FSS Health Support Qld |
| Uranium             | mg/L  | 4 times a year | 23 | 0  | 0 | <0.0001  | <0.0001 | <0.0001 | 0.0001 | FSS Health Support Qld |
| Vanadium            | mg/L  | 4 times a year | 23 | 6  | 0 | 0.00053  | <0.0001 | 0.0035  | 0.0001 | FSS Health Support Qld |
| Zinc                | mg/L  | 4 times a year | 23 | 33 | 0 | 0.012783 | 0.001   | 0.11    | 0.001  | FSS Health Support Qld |
| Conductivity        | mg/L  | 4 times a year | 23 | 31 | 0 | 920.5652 | 292     | 1130    |        | FSS Health Support Qld |
| pH                  |       | 4 times a year | 23 | 23 | 0 | 8.114783 | 7.32    | 8.39    |        | FSS Health Support Qld |
| Total Hardness      | mg/L  | 4 times a year | 23 | 23 | 0 | 23.26087 | 12      | 85      |        | FSS Health Support Qld |
| Temporary Hardness  | mg/L  | 4 times a year | 23 | 23 | 0 | 23.26087 | 12      | 85      |        | FSS Health Support Qld |
| Alkalinity          | mg/L  | 4 times a year | 23 | 23 | 0 | 191.4348 | 98      | 208     |        | FSS Health Support Qld |
| Residual Alkalinity | mg/L  | 4 times a year | 23 | 23 | 0 | 3.365217 | 0.3     | 3.9     |        | FSS Health Support Qld |
| Silica              | mg/L  | 4 times a year | 23 | 23 | 0 | 17.34783 | 13      | 28      |        | FSS Health Support Qld |
| TDI                 | mg/L  | 4 times a year | 23 | 23 | 0 | 641.5217 | 223     | 773     |        | FSS Health Support Qld |
| TDS                 | mg/L  | 4 times a year | 23 | 23 | 0 | 542.7826 | 191     | 666     |        | FSS Health Support Qld |
| True Colour         | Hazen | 4 times a year | 23 | 23 | 0 | 1.26087  | 1       | 3       |        | FSS Health Support Qld |
| Turbidity           | NTU   | 4 times a year | 23 | 23 | 0 | 1.304348 | 1       | 8       |        | FSS Health Support Qld |
| Sodium              | mg/L  | 4 times a year | 23 | 23 | 0 | 194.3043 | 29      | 240     |        | FSS Health Support Qld |
| Potassium           | mg/L  | 4 times a year | 23 | 23 | 0 | 2.108696 | 1.8     | 2.2     |        | FSS Health Support Qld |
| Calcium             | mg/L  | 4 times a year | 23 | 23 | 0 | 6.656522 | 3.8     | 22      |        | FSS Health Support Qld |
| Magnesium           | mg/L  | 4 times a year | 23 | 23 | 0 | 1.630435 | 0.6     | 7.3     |        | FSS Health Support Qld |
| Hydrogen            | mg/L  | 4 times a year | 23 | 0  | 0 | 0        | 0       | 0       |        | FSS Health Support Qld |

|                        |      |                |    |    |   |          |      |             |  |                        |
|------------------------|------|----------------|----|----|---|----------|------|-------------|--|------------------------|
| Bicarbonate            | mg/L | 4 times a year | 23 | 23 | 0 | 228.6957 | 119  | 248         |  | FSS Health Support Qld |
| Carbonate              | mg/L | 4 times a year | 23 | 23 | 0 | 2.386957 | 0.2  | 3.9         |  | FSS Health Support Qld |
| Hydroxide              | mg/L | 4 times a year | 23 | 23 | 0 | 0        | 0    | 0           |  | FSS Health Support Qld |
| Chloride               | mg/L | 4 times a year | 23 | 23 | 0 | 96.95652 | 10   | 120         |  | FSS Health Support Qld |
| Fluoride               | mg/L | 4 times a year | 23 | 23 | 0 | 0.144348 | 0.1  | 0.36        |  | FSS Health Support Qld |
| Nitrate                | mg/L | 4 times a year | 23 | 23 | 0 | 0.786957 | 0.5  | 1           |  | FSS Health Support Qld |
| Sulphate               | mg/L | 4 times a year | 23 | 23 | 0 | 108.913  | 34   | 150         |  | FSS Health Support Qld |
| Chlorine (operational) | mg/L | weekly         | 66 | 66 | 0 | 0        | 0.29 | 0.111515152 |  | In house               |

**Table 5: Verification Monitoring Results - Prairie Source**

| Parameter  | Units | Frequency of sampling | Total No. samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min     | Max     | Average (Mean) | Limit of reporting | Laboratory name                   |
|------------|-------|-----------------------|-----------------------------|--|---|---------|---------|----------------|--------------------|-----------------------------------|
| Aluminium  | mg/L  | 4 times a year        | 7                           | 1  | 0   | <0.003  | 0.003   | 0.003          | 0.003              | FSS Health Support Qld            |
| Antimony   | mg/L  | 4 times a year        | 7                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Arsenic    | mg/L  | 4 times a year        | 7                           | 1  | 0   | <0.0001 | 0.0002  | 0.000114       | 0.0001             | FSS Health Support Qld            |
| Barium     | mg/L  | 4 times a year        | 7                           | 7  | 0   | 0.066   | 0.076   | 0.071714       | 0.0001             | FSS Health Support Qld            |
| Beryllium  | mg/L  | 4 times a year        | 7                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Boron      | mg/L  | 4 times a year        | 7                           | 7  | 0   | 0.21    | 0.29    | 0.247143       | 0.0001             | FSS Health Support Qld            |
| Cadmium    | mg/L  | 4 times a year        | 7                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Chromium   | mg/L  | 4 times a year        | 7                           | 1  | 0   | <0.0001 | 0.0008  | 0.000257       | 0.0001             | FSS Health Support Qld            |
| Cobalt     | mg/L  | 4 times a year        | 7                           | 1  | 0   | <0.0001 | 0.0002  | 0.000114       | 0.0001             | FSS Health Support Qld            |
| Copper     | mg/L  | 4 times a year        | 7                           | 4  | 0   | 0.001   | 0.038   | 0.007286       | 0.001              | FSS Health Support Qld            |
| Iron       | mg/L  | 4 times a year        | 7                           | 7  | 0   | 0.12    | 1.3     | 0.53           | 0.005              | FSS Health Support Qld            |
| Lead       | mg/L  | 4 times a year        | 7                           | 3  | 0   | <0.0001 | 0.0036  | 0.000643       | 0.0001             | FSS Health Support Qld            |
| Manganese  | mg/L  | 4 times a year        | 7                           | 7  | 0   | 0.027   | 0.08    | 0.040429       | 0.0001             | FSS Health Support Qld            |
| Molybdenum | mg/L  | 4 times a year        | 7                           | 7  | 0   | 0.0005  | 0.0011  | 0.000943       | 0.0001             | FSS Health Support Qld            |
| Nickel     | mg/L  | 4 times a year        | 7                           | 3  | 0   | <0.0001 | 0.0012  | 0.000486       | 0.0001             | FSS Health Support Qld & In-house |
| Selenium   | mg/L  | 4 times a year        | 7                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Silver     | mg/L  | 4 times a year        | 7                           | 0  | 0   | <0.001  | <0.001  | <0.001         | 0.001              | FSS Health Support Qld            |
| Strontium  | mg/L  | 4 times a year        | 7                           | 7  | 0   | 0.53    | 0.68    | 0.604286       | 0.0001             | FSS Health Support Qld            |
| Thallium   | mg/L  | 4 times a year        | 7                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support                |

|                     |       |                |   |   |   |         |         |          |        |                        |
|---------------------|-------|----------------|---|---|---|---------|---------|----------|--------|------------------------|
|                     |       |                |   |   |   |         |         |          |        | Qld                    |
| Tin                 | mg/L  | 4 times a year | 7 | 1 | 0 | <0.0001 | 0.0003  | 0.000129 | 0.0001 | FSS Health Support Qld |
| Titanium            | mg/L  | 4 times a year | 7 | 0 | 0 | <0.001  | <0.001  | <0.001   | 0.001  | FSS Health Support Qld |
| Uranium             | mg/L  | 4 times a year | 7 | 0 | 0 | <0.0001 | <0.0001 | <0.0001  | 0.0001 | FSS Health Support Qld |
| Vanadium            | mg/L  | 4 times a year | 7 | 0 | 0 | <0.0001 | <0.0001 | <0.0001  | 0.0001 | FSS Health Support Qld |
| Zinc                | mg/L  | 4 times a year | 7 | 6 | 0 | <0.001  | 0.086   | 0.016    | 0.001  | FSS Health Support Qld |
| Conductivity        | mg/L  | 4 times a year | 7 | 7 | 0 | 1200    | 12000   | 2822.857 |        | FSS Health Support Qld |
| pH                  |       | 4 times a year | 7 | 7 | 0 | 8.06    | 8.25    | 8.148571 |        | FSS Health Support Qld |
| Total Hardness      | mg/L  | 4 times a year | 7 | 7 | 0 | 71      | 93      | 83.57143 |        | FSS Health Support Qld |
| Temporary Hardness  | mg/L  | 4 times a year | 7 | 7 | 0 | 71      | 93      | 83.57143 |        | FSS Health Support Qld |
| Alkalinity          | mg/L  | 4 times a year | 7 | 7 | 0 | 132     | 147     | 139.5714 |        | FSS Health Support Qld |
| Residual Alkalinity | mg/L  | 4 times a year | 7 | 7 | 0 | 1       | 1.3     | 1.1      |        | FSS Health Support Qld |
| Silica              | mg/L  | 4 times a year | 7 | 7 | 0 | 16      | 20      | 18       |        | FSS Health Support Qld |
| TDI                 | mg/L  | 4 times a year | 7 | 7 | 0 | 724     | 822     | 764      |        | FSS Health Support Qld |
| TDS                 | mg/L  | 4 times a year | 7 | 7 | 0 | 657     | 758     | 696.8571 |        | FSS Health Support Qld |
| True Colour         | Hazen | 4 times a year | 7 | 7 | 0 | 1       | 4       | 1.571429 |        | FSS Health Support Qld |
| Turbidity           | NTU   | 4 times a year | 7 | 7 | 0 | 1       | 1       | 1        |        | FSS Health Support Qld |
| Sodium              | mg/L  | 4 times a year | 7 | 7 | 0 | 210     | 260     | 228.5714 |        | FSS Health Support Qld |
| Potassium           | mg/L  | 4 times a year | 7 | 7 | 0 | 5.5     | 6       | 5.785714 |        | FSS Health Support Qld |
| Calcium             | mg/L  | 4 times a year | 7 | 7 | 0 | 20      | 243     | 53.85714 |        | FSS Health Support Qld |
| Magnesium           | mg/L  | 4 times a year | 7 | 7 | 0 | 5.2     | 7.5     | 6.6      |        | FSS Health Support Qld |
| Hydrogen            | mg/L  | 4 times a year | 7 | 0 | 0 | 0       | 0       | 0        |        | FSS Health Support     |



|                             |      |                |   |   |   |         |           |              |   |                        |
|-----------------------------|------|----------------|---|---|---|---------|-----------|--------------|---|------------------------|
|                             |      |                |   |   |   |         |           |              |   | Qld                    |
| Bicarbonate                 | mg/L | 4 times a year | 7 | 7 | 0 | 158     | 177       | 167.1429     |   | FSS Health Support Qld |
| Carbonate                   | mg/L | 4 times a year | 7 | 7 | 0 | 1.1     | 1.9       | 1.518571     |   | FSS Health Support Qld |
| Hydroxide                   | mg/L | 4 times a year | 7 | 0 | 0 | 0       | 0         | 0            |   | FSS Health Support Qld |
| Chloride                    | mg/L | 4 times a year | 7 | 7 | 0 | 240     | 310       | 267.1429     |   | FSS Health Support Qld |
| Fluoride                    | mg/L | 4 times a year | 7 | 7 | 0 | 0.1     | 0.22      | 0.145714     |   | FSS Health Support Qld |
| Nitrate                     | mg/L | 4 times a year | 7 | 7 | 0 | 1       | 1         | 1            |   | FSS Health Support Qld |
| Sulphate                    | mg/L | 4 times a year | 7 | 7 | 0 | 58      | 71        | 66.28571     |   | FSS Health Support Qld |
| Gross Alpha Activity        | Bq/L | Twice a year   | 4 | 4 | 0 | <0.0400 | <0.0400   | <0.0400      | - | FSS Health Support Qld |
| K40 Corrected Beta Activity | Bq/L | Twice a year   | 4 | 4 | 0 | <0.0700 | 0.1 ± 0.1 | 0.0925 ± 0.1 | - | FSS Health Support Qld |

**Table 6: Verification Monitoring results Pesticides - Prairie Source**

| ParameterER                          | Units | Frequency of Sampling | Total No. Samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min  | Max  | Mean        | Limit of reporting | Laboratory name        |
|--------------------------------------|-------|-----------------------|-----------------------------|--|---|------|------|-------------|--------------------|------------------------|
| Aldrin                               | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Dieldrin                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Total Aldrin & Dieldrin <sup>4</sup> | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.4 | <0.4 | <0.4        | 0.2                | FSS Health Support Qld |
| Chlordane cis                        | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Chlordane trans                      | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Total Chlordane                      | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.4 | <0.4 | <0.4        | 0.2                | FSS Health Support Qld |
| DDD (pp)                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| DDE (pp)                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| DDT(op)                              | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| DDT (pp)                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Total DDT                            | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.8 | <0.8 | <0.8        | 0.4                | FSS Health Support Qld |
| Dicofol                              | µg/L  | 4 times a year        | 16                          | 0  | 0   | <2.9 | <2.9 | <2.9        | 1.5                | FSS Health Support Qld |
| a-Endosulfan                         | µg/L  | 4 times a year        | 16                          | 0  | 0   | <1   | <1   | <1          | 0.2                | FSS Health Support Qld |
| b-Endosulfan                         | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.2                | FSS Health Support Qld |
| Endosulfan Sulfate                   | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Total Endosulfan                     | µg/L  | 4 times a year        | 16                          | 0  | 0   | <1.4 | <1.4 | <1.4        | 0.6                | FSS Health Support Qld |
| Heptachlor                           | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Heptachlor Epoxide                   | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2        | 0.1                | FSS Health Support Qld |
| Total Heptachlor <sup>5</sup>        | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.4 | 0.371428571 | 0.2                | FSS Health Support Qld |

<sup>4</sup> Reporting limits are based not on instrument sensitivities, but on sample reproducibility. In the presence of potential interferences etc. which occur in natural waters we set reporting limits where we are confident in the reproducibility of the reported value - the instrument detection limit is often a factor of 10 or more lower.

For the organochlorine pesticides, they have been banned for a number of decades and we do not often see any such residues in the environment. If any such residues were detected we would confirm their presence and quantification via an alternative detection method. Whilst we are reporting a value of < 0.4 ug/L for Total Aldrin & Dieldrin and for Total Heptachlor, the individual components are reported at a lower level, and we can detect their presence well below the guideline values.

If any residues were detected we can confirm down to 0.06 ug/L for each of these total values.

<sup>5</sup> Reporting limits are based not on instrument sensitivities, but on sample reproducibility. In the presence of potential interferences etc. which occur in natural waters we set reporting limits where we are confident in the reproducibility of the reported value - the instrument detection limit is often a factor of 10 or more lower.

|                      |      |                |    |   |   |      |      |              |     |                        |
|----------------------|------|----------------|----|---|---|------|------|--------------|-----|------------------------|
| Lindane (g-HCH)      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Methoxychlor         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Oxychlorodane        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Azinphos-methyl      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Bromophos-ethyl      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Carbophenothion      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Chlorfenvinphos      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Chlorpyrifos         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Diazinon             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Dichlorvos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Dimethoate           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Omethoate            | µg/L | 4 times a year | 16 | 0 | 0 | <0.4 | <0.4 | <0.4         | 0.2 | FSS Health Support Qld |
| Total Dimethoate     | µg/L | 4 times a year | 16 | 0 | 0 | <0.6 | <0.6 | <0.6         | 0.3 | FSS Health Support Qld |
| Disulfoton           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Ethion               | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Ethoprophos          | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenamiphos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenclorophos         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenitrothion         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Fenthion (methyl)    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Malathion (Maldison) | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Methidathion         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Mevinphos            | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Monocrotophos        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Parathion (ethyl)    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Parathion-methyl     | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Pirimiphos-methyl    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Profenofos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Pyrazophos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Sulprofos            | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Temephos             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.4 | <0.257142857 | 0.1 | FSS Health Support Qld |
| Terbufos             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |
| Tetrachlorvinphos    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2         | 0.1 | FSS Health Support Qld |

For the organochlorine pesticides, they have been banned for a number of decades and we do not often see any such residues in the environment. If any such residues were detected we would confirm their presence and quantification via an alternative detection method. Whilst we are reporting a value of < 0.4 ug/L for Total Aldrin & Dieldrin and for Total Heptachlor, the individual components are reported at a lower level, and we can detect their presence well below the guideline values.

If any residues were detected we can confirm down to 0.06 ug/L for each of these total values.

|                    |      |                |    |   |   |       |       |              |      |                        |
|--------------------|------|----------------|----|---|---|-------|-------|--------------|------|------------------------|
| Ametryn            | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Atrazine           | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Bromacil           | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Diuron             | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Fluometuron        | µg/L | 4 times a year | 16 | 0 | 0 | <0.04 | <0.04 | <0.04        | 0.02 | FSS Health Support Qld |
| Hexazinone         | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.04 | <0.025714286 | 0.01 | FSS Health Support Qld |
| Metolachlor        | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Simazine           | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Terbutryn          | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02        | 0.01 | FSS Health Support Qld |
| Amitraz            | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Diclofop-methyl    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Haloxypop-2-etotyl | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Haloxypop-methyl   | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Metribuzin         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Molinate           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Pendimethalin      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Propanil           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Propazine          | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Terbuthylazine     | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Trifluralin        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Captan             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Carbaryl           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Fipronil           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Piperonyl Butoxide | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Pirimicarb         | µg/L | 4 times a year | 16 | 0 | 0 | <0.4  | <0.4  | <0.4         | 0.2  | FSS Health Support Qld |
| Propargite         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Propiconazole      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Triadimefon        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Total Triadimefon  | µg/L | 4 times a year | 16 | 0 | 0 | <0.6  | <0.6  | <0.6         | 0.3  | FSS Health Support Qld |
| Bioresmethrin      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Cyfluthrin         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Cypermethrin       | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.5  | FSS Health Support Qld |
| Deltamethrin       | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Fenvalerate        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |
| Permethrin         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2         | 0.1  | FSS Health Support Qld |

**Table 7: Verification and operational results - Prairie reticulation**

| Parameter  | Units | Frequency of sampling | Total No. samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min     | Max     | Average (Mean) | Limit of reporting | Laboratory name                   |
|------------|-------|-----------------------|-----------------------------|--|---|---------|---------|----------------|--------------------|-----------------------------------|
| Aluminium  | mg/L  | 4 times a year        | 9                           | 1  | 0   | <0.003  | 0.008   | 0.003556       | 0.003              | FSS Health Support Qld            |
| Antimony   | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Arsenic    | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Barium     | mg/L  | 4 times a year        | 9                           | 19   | 0   | 0.061   | 0.075   | 0.068111       | 0.0001             | FSS Health Support Qld            |
| Beryllium  | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Boron      | mg/L  | 4 times a year        | 9                           | 9  | 0   | 0.21    | 0.24    | 0.227778       | 0.0001             | FSS Health Support Qld            |
| Cadmium    | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Chromium   | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Cobalt     | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Copper     | mg/L  | 4 times a year        | 9                           | 3  | 0   | <0.001  | 0.018   | 0.004778       | 0.001              | FSS Health Support Qld            |
| Iron       | mg/L  | 4 times a year        | 9                           | 9  | 0   | 0.027   | 0.11    | 0.057444       | 0.005              | FSS Health Support Qld            |
| Lead       | mg/L  | 4 times a year        | 9                           | 5  | 0   | <0.0001 | 0.0046  | 0.000967       | 0.0001             | FSS Health Support Qld            |
| Manganese  | mg/L  | 4 times a year        | 9                           | 9  | 0   | 0.0062  | 0.03    | 0.022244       | 0.0001             | FSS Health Support Qld            |
| Molybdenum | mg/L  | 4 times a year        | 9                           | 9  | 0   | 0.0001  | 0.0011  | 0.000778       | 0.0001             | FSS Health Support Qld            |
| Nickel     | mg/L  | 4 times a year        | 9                           | 2  | 0   | <0.0001 | 0.0079  | 0.0011         | 0.0001             | FSS Health Support Qld & In-house |
| Selenium   | mg/L  | 4 times a year        | 9                           | 2  | 0   | <0.0001 | 0.0002  | 0.000111       | 0.0001             | FSS Health Support Qld            |
| Silver     | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.001  | <0.001  | <0.001         | 0.001              | FSS Health Support Qld            |
| Strontium  | mg/L  | 4 times a year        | 9                           | 9  | 0   | 0.6     | 0.68    | 0.652222       | 0.0001             | FSS Health Support Qld            |
| Thallium   | mg/L  | 4 times a year        | 9                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support                |

|                     |       |                |   |   |   |         |         |          |        |                        |
|---------------------|-------|----------------|---|---|---|---------|---------|----------|--------|------------------------|
|                     |       |                |   |   |   |         |         |          |        | Qld                    |
| Tin                 | mg/L  | 4 times a year | 9 | 2 |   | <0.0001 | 0.0002  | 0.000122 | 0.0001 | FSS Health Support Qld |
| Titanium            | mg/L  | 4 times a year | 9 | 0 | 0 | <0.001  | <0.001  | <0.001   | 0.001  | FSS Health Support Qld |
| Uranium             | mg/L  | 4 times a year | 9 | 0 | 0 | <0.0001 | <0.0001 | <0.0001  | 0.0001 | FSS Health Support Qld |
| Vanadium            | mg/L  | 4 times a year | 9 | 4 | 0 | <0.0001 | 0.0005  | 0.000156 | 0.0001 | FSS Health Support Qld |
| Zinc                | mg/L  | 4 times a year | 9 | 9 | 0 | 0.003   | 0.28    | 0.046778 | 0.001  | FSS Health Support Qld |
| Conductivity        | mg/L  | 4 times a year | 9 | 9 | 0 | 1200    | 1260    | 1225.556 |        | FSS Health Support Qld |
| pH                  |       | 4 times a year | 9 | 9 | 0 | 8.16    | 8.32    | 8.238889 |        | FSS Health Support Qld |
| Total Hardness      | mg/L  | 4 times a year | 9 | 9 | 0 | 86      | 93      | 90.22222 |        | FSS Health Support Qld |
| Temporary Hardness  | mg/L  | 4 times a year | 9 | 9 | 0 | 86      | 93      | 90.22222 |        | FSS Health Support Qld |
| Alkalinity          | mg/L  | 4 times a year | 9 | 9 | 0 | 141     | 148     | 144.6667 |        | FSS Health Support Qld |
| Residual Alkalinity | mg/L  | 4 times a year | 9 | 9 | 0 | 1       | 1.1     | 1.077778 |        | FSS Health Support Qld |
| Silica              | mg/L  | 4 times a year | 9 | 9 | 0 | 16      | 20      | 19       |        | FSS Health Support Qld |
| TDI                 | mg/L  | 4 times a year | 9 | 9 | 0 | 733     | 750     | 740.2222 |        | FSS Health Support Qld |
| TDS                 | mg/L  | 4 times a year | 9 | 9 | 0 | 664     | 681     | 671.4444 |        | FSS Health Support Qld |
| True Colour         | Hazen | 4 times a year | 9 | 9 | 0 | 1       | 4       | 1.333333 |        | FSS Health Support Qld |
| Turbidity           | NTU   | 4 times a year | 9 | 9 | 0 | 1       | 1       | 1        |        | FSS Health Support Qld |
| Sodium              | mg/L  | 4 times a year | 9 | 9 | 0 | 210     | 220     | 213.3333 |        | FSS Health Support Qld |
| Potassium           | mg/L  | 4 times a year | 9 | 9 | 0 | 5.8     | 6       | 5.866667 |        | FSS Health Support Qld |
| Calcium             | mg/L  | 4 times a year | 9 | 9 | 0 | 24      | 27      | 24.77778 |        | FSS Health Support Qld |
| Magnesium           | mg/L  | 4 times a year | 9 | 9 | 0 | 6.3     | 7.3     | 7.022222 |        | FSS Health Support Qld |
| Hydrogen            | mg/L  | 4 times a year | 9 | 0 | 0 | 0       | 0       | 0        |        | FSS Health Support     |

|                        |      |                |     |     |   |      |      |             |  |                        |
|------------------------|------|----------------|-----|-----|---|------|------|-------------|--|------------------------|
|                        |      |                |     |     |   |      |      |             |  | Qld                    |
| Bicarbonate            | mg/L | 4 times a year | 9   | 9   | 0 | 167  | 177  | 172.6667    |  | FSS Health Support Qld |
| Carbonate              | mg/L | 4 times a year | 9   | 9   | 0 | 1.5  | 2.4  | 1.888889    |  | FSS Health Support Qld |
| Hydroxide              | mg/L | 4 times a year | 9   | 0   | 0 | 0    | 0    | 0           |  | FSS Health Support Qld |
| Chloride               | mg/L | 4 times a year | 9   | 9   | 0 | 240  | 250  | 244.4444    |  | FSS Health Support Qld |
| Fluoride               | mg/L | 4 times a year | 9   | 9   | 0 | 0.12 | 0.18 | 0.144444    |  | FSS Health Support Qld |
| Nitrate                | mg/L | 4 times a year | 9   | 9   | 0 | 1    | 1    | 1           |  | FSS Health Support Qld |
| Sulphate               | mg/L | 4 times a year | 9   | 9   | 0 | 64   | 71   | 69.77778    |  | FSS Health Support Qld |
| Chlorine (operational) | mg/L | 3 times a week | 151 | 151 | 0 | 0    | 2    | 0.287298013 |  | In House               |

**Table 8: Verification Monitoring Results - Torrens Creek Source Water**

| Parameter  | Units | Frequency of sampling | Total No. samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min     | Max     | Average (Mean) | Limit of reporting | Laboratory name                   |
|------------|-------|-----------------------|-----------------------------|--|---|---------|---------|----------------|--------------------|-----------------------------------|
| Aluminium  | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0001  | 0.046   | 0.01975        | 0.003              | FSS Health Support Qld            |
| Antimony   | mg/L  | 4 times a year        | 4                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Arsenic    | mg/L  | 4 times a year        | 4                           | 3  | 0   | <0.0001 | 0.0004  | 0.000225       | 0.0001             | FSS Health Support Qld            |
| Barium     | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0004  | 0.21    | 0.175          | 0.0001             | FSS Health Support Qld            |
| Beryllium  | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0004  | 0.0006  | 0.000475       | 0.0001             | FSS Health Support Qld            |
| Boron      | mg/L  | 4 times a year        | 4                           | 4  | 0   | <0.0001 | 0.044   | 0.04025        | 0.0001             | FSS Health Support Qld            |
| Cadmium    | mg/L  | 4 times a year        | 4                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Chromium   | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0002  | 0.0009  | 0.000475       | 0.0001             | FSS Health Support Qld            |
| Cobalt     | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0006  | 0.0009  | 0.00075        | 0.0001             | FSS Health Support Qld            |
| Copper     | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.007   | 0.016   | 0.01075        | 0.001              | FSS Health Support Qld            |
| Iron       | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0002  | 3.1     | 2.275          | 0.005              | FSS Health Support Qld            |
| Lead       | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0002  | 0.0008  | 0.0005         | 0.0001             | FSS Health Support Qld            |
| Manganese  | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0001  | 0.049   | 0.04275        | 0.0001             | FSS Health Support Qld            |
| Molybdenum | mg/L  | 4 times a year        | 4                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Nickel     | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0002  | 0.0044  | 0.003825       | 0.0001             | FSS Health Support Qld & In-house |
| Selenium   | mg/L  | 4 times a year        | 4                           | 4  | 0   | 0.0002  | 0.0003  | 0.000275       | 0.0001             | FSS Health Support Qld            |
| Silver     | mg/L  | 4 times a year        | 4                           | 0  | 0   | <0.001  | 0.001   | 0.001          | 0.001              | FSS Health Support Qld            |



|                     |       |                |   |   |   |         |        |          |        |                        |
|---------------------|-------|----------------|---|---|---|---------|--------|----------|--------|------------------------|
| Strontium           | mg/L  | 4 times a year | 4 | 4 |   | 0.0002  | 0.071  | 0.03275  | 0.0001 | FSS Health Support Qld |
| Thallium            | mg/L  | 4 times a year | 4 | 0 | 0 | <0.0001 | 0.0003 | 0.00025  | 0.0001 | FSS Health Support Qld |
| Tin                 | mg/L  | 4 times a year | 4 | 2 | 0 | <0.0001 | 0.0003 | 0.000175 | 0.0001 | FSS Health Support Qld |
| Titanium            | mg/L  | 4 times a year | 4 | 1 | 0 | <0.0004 | 0.002  | 0.00125  | 0.001  | FSS Health Support Qld |
| Uranium             | mg/L  | 4 times a year | 4 | 4 | 0 | 0.0003  | 0.0007 | 0.000525 | 0.0001 | FSS Health Support Qld |
| Vanadium            | mg/L  | 4 times a year | 4 | 4 | 0 | 0.0003  | 0.0006 | 0.00045  | 0.0001 | FSS Health Support Qld |
| Zinc                | mg/L  | 4 times a year | 4 | 4 | 0 | 0.02    | 0.05   | 0.033    | 0.001  | FSS Health Support Qld |
| Conductivity        | mg/L  | 4 times a year | 4 | 4 | 0 | 5.93    | 193    | 187      |        | FSS Health Support Qld |
| pH                  |       | 4 times a year | 4 | 4 | 0 | 5.93    | 6.69   | 6.4075   |        | FSS Health Support Qld |
| Total Hardness      | mg/L  | 4 times a year | 4 | 4 | 0 | 19      | 22     | 20       |        | FSS Health Support Qld |
| Temporary Hardness  | mg/L  | 4 times a year | 4 | 4 | 0 | 19      | 22     | 20       |        | FSS Health Support Qld |
| Alkalinity          | mg/L  | 4 times a year | 4 | 4 | 0 | 0.1     | 39     | 33.5     |        | FSS Health Support Qld |
| Residual Alkalinity | mg/L  | 4 times a year | 4 | 4 | 0 | 0.1     | 0.4    | 0.25     |        | FSS Health Support Qld |
| Silica              | mg/L  | 4 times a year | 4 | 4 | 0 | 12      | 14     | 13.25    |        | FSS Health Support Qld |
| TDI                 | mg/L  | 4 times a year | 4 | 4 | 0 | 105     | 125    | 116      |        | FSS Health Support Qld |
| TDS                 | mg/L  | 4 times a year | 4 | 4 | 0 | 1       | 113    | 109      |        | FSS Health Support Qld |
| True Colour         | Hazen | 4 times a year | 4 | 4 | 0 | 1       | 1      | 1        |        | FSS Health Support Qld |
| Turbidity           | NTU   | 4 times a year | 4 | 4 | 0 | 4       | 14     | 7        |        | FSS Health Support Qld |
| Sodium              | mg/L  | 4 times a year | 4 | 4 | 0 | 6.8     | 24     | 21.75    |        | FSS Health Support Qld |
| Potassium           | mg/L  | 4 times a year | 4 | 4 | 0 | 0.9     | 15     | 11.45    |        | FSS Health Support Qld |
| Calcium             | mg/L  | 4 times a year | 4 | 4 | 0 | 0.9     | 1.4    | 1.125    |        | FSS Health Support Qld |

|                             |      |                |   |   |   |            |           |             |   |                        |
|-----------------------------|------|----------------|---|---|---|------------|-----------|-------------|---|------------------------|
| Magnesium                   | mg/L | 4 times a year | 4 | 4 | 0 | 0          | 4.6       | 4.2         |   | FSS Health Support Qld |
| Hydrogen                    | mg/L | 4 times a year | 4 | 0 | 0 | 0          | 0         | 0           |   | FSS Health Support Qld |
| Bicarbonate                 | mg/L | 4 times a year | 4 | 4 | 0 | 0          | 47        | 40.75       |   | FSS Health Support Qld |
| Carbonate                   | mg/L | 4 times a year | 4 | 0 | 0 | 0          | 0         | 0           |   | FSS Health Support Qld |
| Hydroxide                   | mg/L | 4 times a year | 4 | 0 | 0 | 0          | 0         | 0           |   | FSS Health Support Qld |
| Chloride                    | mg/L | 4 times a year | 4 | 4 | 0 | 0.06       | 36        | 31.75       |   | FSS Health Support Qld |
| Fluoride                    | mg/L | 4 times a year | 4 | 4 | 0 | 0.06       | 0.09      | 0.0725      |   | FSS Health Support Qld |
| Nitrate                     | mg/L | 4 times a year | 4 | 4 | 0 | 1.2        | 1.6       | 1.35        |   | FSS Health Support Qld |
| Sulphate                    | mg/L | 4 times a year | 4 | 4 | 0 | 3          | 4         | 3.5         |   | FSS Health Support Qld |
| Gross Alpha Activity        | Bq/L | Twice a year   | 2 | 2 | 0 | 0.1±0.0500 | 0.23±0.06 | 0.165±0.055 | - | FSS Health Support Qld |
| K40 Corrected Beta Activity | Bq/L | Twice a year   | 2 | 2 | 0 | 0.2±0.100  | 0.2±0.100 | 0.2±0.100   | - | FSS Health Support Qld |

**Table 9: Verification Monitoring pesticides results - Torrens Creek Source Water**

| ParameterER                          | Units | Frequency of Sampling | Total No. Samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min  | Max  | Mean  | Limit of reporting | Laboratory name        |
|--------------------------------------|-------|-----------------------|-----------------------------|--|---|------|------|-------|--------------------|------------------------|
| Aldrin                               | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Dieldrin                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Total Aldrin & Dieldrin <sup>6</sup> | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.4 | <0.4 | <0.4  | 0.2                | FSS Health Support Qld |
| Chlordane cis                        | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Chlordane trans                      | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Total Chlordane                      | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.4 | <0.4 | <0.4  | 0.2                | FSS Health Support Qld |
| DDD (pp)                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| DDE (pp)                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| DDT(op)                              | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| DDT (pp)                             | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Total DDT                            | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.8 | <0.8 | <0.8  | 0.4                | FSS Health Support Qld |
| Dicofol                              | µg/L  | 4 times a year        | 16                          | 0  | 0   | <2.9 | <3   | <2.95 | 1.5                | FSS Health Support Qld |
| a-Endosulfan                         | µg/L  | 4 times a year        | 16                          | 0  | 0   | <1   | <1   | <1    | 0.2                | FSS Health Support Qld |
| b-Endosulfan                         | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.2                | FSS Health Support Qld |
| Endosulfan Sulfate                   | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Total Endosulfan                     | µg/L  | 4 times a year        | 16                          | 0  | 0   | <1.4 | <1.4 | <1.4  | 0.6                | FSS Health Support Qld |
| Heptachlor                           | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Heptachlor Epoxide                   | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.2 | <0.2  | 0.1                | FSS Health Support Qld |
| Total Heptachlor <sup>7</sup>        | µg/L  | 4 times a year        | 16                          | 0  | 0   | <0.2 | <0.4 | <0.35 | 0.2                | FSS Health Support Qld |

<sup>6</sup> Reporting limits are based not on instrument sensitivities, but on sample reproducibility. In the presence of potential interferences etc. which occur in natural waters we set reporting limits where we are confident in the reproducibility of the reported value - the instrument detection limit is often a factor of 10 or more lower.

For the organochlorine pesticides, they have been banned for a number of decades and we do not often see any such residues in the environment. If any such residues were detected we would confirm their presence and quantification via an alternative detection method. Whilst we are reporting a value of < 0.4 µg/L for Total Aldrin & Dieldrin and for Total Heptachlor, the individual components are reported at a lower level, and we can detect their presence well below the guideline values.

If any residues were detected we can confirm down to 0.06 µg/L for each of these total values.

<sup>7</sup> Reporting limits are based not on instrument sensitivities, but on sample reproducibility. In the presence of potential interferences etc. which occur in natural waters we set reporting limits where we are confident in the reproducibility of the reported value - the instrument detection limit is often a factor of 10 or more lower.

|                      |      |                |    |   |   |      |      |       |     |                        |
|----------------------|------|----------------|----|---|---|------|------|-------|-----|------------------------|
| Lindane (g-HCH)      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Methoxychlor         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Oxychlorodane        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Azinphos-methyl      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Bromophos-ethyl      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Carbophenothion      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Chlorfenvinphos      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Chlorpyrifos         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Diazinon             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Dichlorvos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Dimethoate           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Omethoate            | µg/L | 4 times a year | 16 | 0 | 0 | <0.4 | <0.4 | <0.4  | 0.2 | FSS Health Support Qld |
| Total Dimethoate     | µg/L | 4 times a year | 16 | 0 | 0 | <0.6 | <0.6 | <0.6  | 0.3 | FSS Health Support Qld |
| Disulfoton           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Ethion               | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Ethoprophos          | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Fenamiphos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Fenclorophos         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Fenitrothion         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Fenthion (methyl)    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Malathion (Maldison) | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Methidathion         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Mevinphos            | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Monocrotophos        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Parathion (ethyl)    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Parathion-methyl     | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Pirimiphos-methyl    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Profenofos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Pyrazophos           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Sulprofos            | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Temephos             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.4 | <0.25 | 0.1 | FSS Health Support Qld |
| Terbufos             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |
| Tetrachlorvinphos    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2 | <0.2 | <0.2  | 0.1 | FSS Health Support Qld |

For the organochlorine pesticides, they have been banned for a number of decades and we do not often see any such residues in the environment. If any such residues were detected we would confirm their presence and quantification via an alternative detection method. Whilst we are reporting a value of < 0.4 ug/L for Total Aldrin & Dieldrin and for Total Heptachlor, the individual components are reported at a lower level, and we can detect their presence well below the guideline values.

If any residues were detected we can confirm down to 0.06 ug/L for each of these total values.

|                    |      |                |    |   |   |       |       |        |      |                        |
|--------------------|------|----------------|----|---|---|-------|-------|--------|------|------------------------|
| Ametryn            | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Atrazine           | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Bromacil           | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Diuron             | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Fluometuron        | µg/L | 4 times a year | 16 | 0 | 0 | <0.04 | <0.04 | <0.04  | 0.02 | FSS Health Support Qld |
| Hexazinone         | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.04 | <0.025 | 0.01 | FSS Health Support Qld |
| Metolachlor        | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Simazine           | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Terbutryn          | µg/L | 4 times a year | 16 | 0 | 0 | <0.02 | <0.02 | <0.02  | 0.01 | FSS Health Support Qld |
| Amitraz            | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Diclofop-methyl    | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Haloxypop-2-etotyl | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Haloxypop-methyl   | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Metribuzin         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Molinate           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Pendimethalin      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Propanil           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Propazine          | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Terbuthylazine     | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Trifluralin        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Captan             | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Carbaryl           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Fipronil           | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Piperonyl Butoxide | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Pirimicarb         | µg/L | 4 times a year | 16 | 0 | 0 | <0.4  | <0.4  | <0.4   | 0.2  | FSS Health Support Qld |
| Propargite         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Propiconazole      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Triadimefon        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Total Triadimefon  | µg/L | 4 times a year | 16 | 0 | 0 | <0.6  | <0.6  | <0.6   | 0.3  | FSS Health Support Qld |
| Bioresmethrin      | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Cyfluthrin         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Cypermethrin       | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.5  | FSS Health Support Qld |
| Deltamethrin       | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Fenvalerate        | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |
| Permethrin         | µg/L | 4 times a year | 16 | 0 | 0 | <0.2  | <0.2  | <0.2   | 0.1  | FSS Health Support Qld |

**Table 10: Verification Monitoring and operational results Torrens Creek reticulation**

| Parameter  | Units | Frequency of sampling | Total No. samples collected | No. of samples in which parameter was detected | No. of samples exceeding water quality criteria | Min     | Max     | Average (Mean) | Limit of reporting | Laboratory name                   |
|------------|-------|-----------------------|-----------------------------|--|---|---------|---------|----------------|--------------------|-----------------------------------|
| Aluminium  | mg/L  | 4 times a year        | 8                           | 7  | 0   | <0.003  | 0.034   | 0.01475        | 0.003              | FSS Health Support Qld            |
| Antimony   | mg/L  | 4 times a year        | 8                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Arsenic    | mg/L  | 4 times a year        | 8                           | 2  | 0   | <0.0001 | 0.0009  | 0.000238       | 0.0001             | FSS Health Support Qld            |
| Barium     | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.16    | 0.21    | 0.185          | 0.0001             | FSS Health Support Qld            |
| Beryllium  | mg/L  | 4 times a year        | 8                           | 7  | 0   | <0.0001 | 0.0013  | 0.000463       | 0.0001             | FSS Health Support Qld            |
| Boron      | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.038   | 0.046   | 0.040375       | 0.0001             | FSS Health Support Qld            |
| Cadmium    | mg/L  | 4 times a year        | 8                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Chromium   | mg/L  | 4 times a year        | 8                           | 5  | 0   | <0.0001 | 0.0011  | 0.0003         | 0.0001             | FSS Health Support Qld            |
| Cobalt     | mg/L  | 4 times a year        | 8                           | 7  | 0   | <0.0001 | 0.0023  | 0.0006         | 0.0001             | FSS Health Support Qld            |
| Copper     | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.005   | 0.043   | 0.024125       | 0.001              | FSS Health Support Qld            |
| Iron       | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.26    | 14      | 2.8225         | 0.005              | FSS Health Support Qld            |
| Lead       | mg/L  | 4 times a year        | 8                           | 7  | 0   | <0.0001 | 0.0038  | 0.0014         | 0.0001             | FSS Health Support Qld            |
| Manganese  | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.0069  | 0.18    | 0.044363       | 0.0001             | FSS Health Support Qld            |
| Molybdenum | mg/L  | 4 times a year        | 8                           | 0  | 0   | <0.0001 | <0.0001 | <0.0001        | 0.0001             | FSS Health Support Qld            |
| Nickel     | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.0026  | 0.0041  | 0.0035         | 0.0001             | FSS Health Support Qld & In-house |
| Selenium   | mg/L  | 4 times a year        | 8                           | 7  | 0   | <0.0001 | 0.0003  | 0.00025        | 0.0001             | FSS Health Support Qld            |
| Silver     | mg/L  | 4 times a year        | 8                           | 0  | 0   | <0.001  | <0.001  | <0.001         | 0.001              | FSS Health Support Qld            |
| Strontium  | mg/L  | 4 times a year        | 8                           | 8  | 0   | 0.019   | 0.027   | 0.021875       | 0.0001             | FSS Health Support Qld            |
| Thallium   | mg/L  | 4 times a year        | 8                           | 5  | 0   | <0.0001 | 0.0008  | 0.000263       | 0.0001             | FSS Health Support                |

|                     |       |                |   |   |   |         |        |          |        |                        |
|---------------------|-------|----------------|---|---|---|---------|--------|----------|--------|------------------------|
|                     |       |                |   |   |   |         |        |          |        | Q/d                    |
| Tin                 | mg/L  | 4 times a year | 8 | 3 | 0 | <0.0001 | 0.0006 | 0.000225 | 0.0001 | FSS Health Support Q/d |
| Titanium            | mg/L  | 4 times a year | 8 | 0 | 0 | <0.001  | <0.001 | <0.001   | 0.001  | FSS Health Support Q/d |
| Uranium             | mg/L  | 4 times a year | 8 | 7 | 0 | <0.0001 | 0.0024 | 0.000575 | 0.0001 | FSS Health Support Q/d |
| Vanadium            | mg/L  | 4 times a year | 8 | 4 | 0 | <0.0001 | 0.0025 | 0.0005   | 0.0001 | FSS Health Support Q/d |
| Zinc                | mg/L  | 4 times a year | 8 | 8 | 0 | 0.01    | 0.056  | 0.032875 | 0.001  | FSS Health Support Q/d |
| Conductivity        | mg/L  | 4 times a year | 8 | 8 | 0 | 193     | 202    | 198      |        | FSS Health Support Q/d |
| pH                  |       | 4 times a year | 8 | 8 | 0 | 6.36    | 6.85   | 6.56375  |        | FSS Health Support Q/d |
| Total Hardness      | mg/L  | 4 times a year | 8 | 8 | 0 | 21      | 25     | 22.5     |        | FSS Health Support Q/d |
| Temporary Hardness  | mg/L  | 4 times a year | 8 | 8 | 0 | 21      | 25     | 22.5     |        | FSS Health Support Q/d |
| Alkalinity          | mg/L  | 4 times a year | 8 | 8 | 0 | 35      | 40     | 37.75    |        | FSS Health Support Q/d |
| Residual Alkalinity | mg/L  | 4 times a year | 8 | 8 | 0 | 0.2     | 0.4    | 0.3      |        | FSS Health Support Q/d |
| Silica              | mg/L  | 4 times a year | 8 | 8 | 0 | 12      | 15     | 14.125   |        | FSS Health Support Q/d |
| TDI                 | mg/L  | 4 times a year | 8 | 8 | 0 | 123     | 128    | 124.75   |        | FSS Health Support Q/d |
| TDS                 | mg/L  | 4 times a year | 8 | 8 | 0 | 114     | 117    | 115.75   |        | FSS Health Support Q/d |
| True Colour         | Hazen | 4 times a year | 8 | 8 | 0 | 1       | 2      | 1.125    |        | FSS Health Support Q/d |
| Turbidity           | NTU   | 4 times a year | 8 | 8 | 0 | 1       | 91     | 16.625   |        | FSS Health Support Q/d |
| Sodium              | mg/L  | 4 times a year | 8 | 8 | 0 | 4       | 23     | 19.375   |        | FSS Health Support Q/d |
| Potassium           | mg/L  | 4 times a year | 8 | 8 | 0 | 12      | 22     | 14.625   |        | FSS Health Support Q/d |
| Calcium             | mg/L  | 4 times a year | 8 | 8 | 0 | 1.3     | 13     | 3.275    |        | FSS Health Support Q/d |
| Magnesium           | mg/L  | 4 times a year | 8 | 8 | 0 | 2       | 4.8    | 4.0375   |        | FSS Health Support Q/d |
| Hydrogen            | mg/L  | 4 times a year | 8 | 8 | 0 | 0       | 4.2    | 0.525    |        | FSS Health Support     |

|                        |      |                |                       |     |   |      |      |           |  |                        |
|------------------------|------|----------------|-----------------------|-----|---|------|------|-----------|--|------------------------|
|                        |      |                |                       |     |   |      |      |           |  | Qld                    |
| Bicarbonate            | mg/L | 4 times a year | 8                     | 8   | 0 | 0    | 48   | 40.125    |  | FSS Health Support Qld |
| Carbonate              | mg/L | 4 times a year | 8                     | 8   | 0 | 0    | 46   | 5.75      |  | FSS Health Support Qld |
| Hydroxide              | mg/L | 4 times a year | 8                     | 8   | 0 | 0    | 0    | 0         |  | FSS Health Support Qld |
| Chloride               | mg/L | 4 times a year | 8                     | 8   | 0 | 0    | 34   | 28        |  | FSS Health Support Qld |
| Fluoride               | mg/L | 4 times a year | 8                     | 8   | 0 | 0.06 | 32   | 4.0725    |  | FSS Health Support Qld |
| Nitrate                | mg/L | 4 times a year | 8                     | 8   | 0 | 0.09 | 1.4  | 1.14875   |  | FSS Health Support Qld |
| Sulphate               | mg/L | 4 times a year | 8                     | 8   | 0 | 1.3  | 4    | 3.6625    |  | FSS Health Support Qld |
| Chlorine (operational) | mg/L | 3 times a week | 148                   | 147 | 0 | 0    | 1.91 | 0.3914189 |  | In-house               |
| Turbidity Operational  |      | Weekly         | 16 (started March 18) | 16  | - | 1    | 4    | 2.125     |  | In-house               |



Table 11 - Reticulation *E. coli* verification monitoring

Drinking water scheme: Hughenden

| Year  | 2017  |       |       |       |       |       |       |       |       |       |        |        |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| Month   | Jan   | Feb   | Mar   | Apr   | May   | June  | July  | Aug   | Sept  | Oct   | Nov    | Dec    |
| No. of samples collected  | 26    | 27    | 35    | 24    | 30    | 21    | 9     | 13    | 7     | 8     | 10     | 9      |
| No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure) | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0      | 0      |
| No. of samples collected in previous 12 month period                          | 367   | 366   | 366   | 362   | 364   | 353   | 351   | 328   | 308   | 289   | 233    | 219    |
| No. of failures for previous 12 month period                                  | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 5     | 0      | 0      |
| % of samples that comply  | 98.6% | 98.6% | 98.6% | 98.6% | 98.6% | 98.6% | 98.6% | 98.5% | 98.4% | 98.3% | 100.0% | 100.0% |
| Compliance with 98% annual value  | YES   | YES   | YES   | YES   | YES   | YES   | YES   | YES   | YES   | YES   | YES    | YES    |

Drinking water scheme: Hughenden

| Year  | 2018   |        |        |        |        |        |       |       |       |       |       |       |
|---|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|
| Month   | Jan    | Feb    | Mar    | Apr    | May    | June   | July  | Aug   | Sept  | Oct   | Nov   | Dec   |
| No. of samples collected  | 12     | 6      | 11     | 10     | 11     | 8      | 12    |       |       |       |       |       |
| No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure) | 0      | 0      | 0      | 0      | 0      | 0      | 1     |       |       |       |       |       |
| No. of samples collected in previous 12 month period                          | 205    | 184    | 160    | 146    | 127    | 114    | 117   | 104   | 97    | 89    | 79    | 70    |
| No. of failures for previous 12 month period                                  | 0      | 0      | 0      | 0      | 0      | 0      | 1     | 1     | 1     | 1     | 1     | 1     |
| % of samples that comply  | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 99.1% | 99.0% | 99.0% | 98.9% | 98.7% | 98.6% |
| Compliance with 98% annual value  | YES    | YES    | YES    | YES    | YES    | YES    | YES   | YES   | YES   | YES   | YES   | YES   |

Drinking water scheme: Prairie

| Year  | 2017 to 2018 |        |        |        |        |        |        |        |        |        |        |        |
|---|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Month   | July         | Aug    | Sept   | Oct    | Nov    | Dec    | Jan    | Feb    | Mar    | Apr    | May    | Jun    |
| No. of samples collected  | 4            | 2      | 1      | 2      | 2      | 1      | 2      | 2      | 1      | 2      | 2      | 1      |
| No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure) | 0            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| No. of samples collected in previous 12 month period                          | 40           | 39     | 37     | 36     | 35     | 33     | 32     | 31     | 29     | 26     | 23     | 22     |
| No. of failures for previous 12 month period                                  | 0            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| % of samples that comply  | 100.0%       | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Compliance with 98% annual value  | YES          | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    |

Drinking water scheme: Torrens Creek

| Year  | 2017 to 2018 |        |        |        |        |        |        |        |        |        |        |        |
|---|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Month   | July         | Aug    | Sept   | Oct    | Nov    | Dec    | Jan    | Feb    | Mar    | Apr    | May    | Jun    |
| No. of samples collected  | 4            | 2      | 1      | 2      | 2      | 1      | 2      | 2      | 1      | 2      | 2      | 1      |
| No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure) | 0            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| No. of samples collected in previous 12 month period                          | 36           | 35     | 33     | 32     | 31     | 29     | 28     | 27     | 25     | 24     | 23     | 22     |
| No. of failures for previous 12 month period                                  | 0            | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| % of samples that comply  | 100.0%       | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Compliance with 98% annual value  | YES          | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    | YES    |

## Appendix B – Implementation of the DWQMP Risk Management Improvement Program

| IP item     | Action   | Description   | Target date/s  | Status as of December 2018 | Details and update  |
|-------------|--|---|--|----------------------------|---|
| <b>IP-1</b> | Bore Head improvement program  | Mounding of concrete around bore heads, replacement/Maintenance of slabs. Sealing of possible ingress sites.<br>Short-term: Investigation of works required and cost estimates.<br>Long-term: upgrade | Interim: Ongoing inspection and maintenance.<br>Short-term: 30th December 2018<br>Long-term: finish unknown                  | Ongoing.                   | Inspection of the bores occurs on a weekly basis. Any ingress sites are sealed when discovered. This is an ongoing project. |
| <b>IP 2</b> | Analysis of Torrens Creek River Well Water   | Analysis of Torrens Creek River Well Water – uses as Emergency Back up  | February 2018 – December 2018  | Testing has started        | Will continue testing throughout next financial year.   |
| IP-3        | Investigation of options for improving the integrity of bore casings                                       | Inspection of selected bores with cameras in order to establish what work is required. Options can be explored once Council has up-to-date data.  | Bores 5, 7 & 2 Completed in 2014 – due in 5 years.<br>Bore 9, Prairie and Torrens Creek Bore will be put in 2018/2019 Budget | Ongoing                    | Investigating possibility of new bore in Torrens Creek.   |
| IP-4        | Development of Monitoring Program for inspection of temporary foam Sealant and Slab Condition of all bores | Plumbers to inspect sealant and Bore slabs weekly and document in diary/logbook   | December 2017  | Ongoing                    | Ongoing   |

| IP item | Action   | Description  | Target date/s  | Status as of December 2018 | Details and update  |
|---------|--|--|--|----------------------------|---|
| IP-5    | Long-term replacement program for bore casements | Dependent on outcome from IP-3. Once options have been explored Council can develop a long-term replacement program  | Ongoing  | In Progress                | Engineering Department are developing program.  |
| IP-6    | Bore Replacement Program                         | Money is currently put aside each year in order to fund new bores. The need for a new bore/ conditioning of old bores is highly dependent upon the outcome of IP-3.                      | ongoing  | In Progress                | Ongoing   |
| IP-7    | Chlorination at Hughenden                        | Installation of Chlorination equipment. Equipment is able to be housed in same facility as Fluoridation equipment.<br>Short-term: Design Criteria and costing<br>Long-term: Installation | Short-term: Completed<br>Long-term: 31st Dec 2017(fast-tracked if there are ongoing issues). |                            | A concept design report has been prepared. Council to go to tender for provision and installation of equipment.<br><br>GH&D have completed the final design and money has been put aside in the 2017/2018 Budget. |
| IP-8    | Water Mains replacement                          | Development of program to replace water mains in Hughenden, Torrens Creek and Prairie.   | Ongoing from July 2018   | Ongoing                    | Ongoing   |

| IP item | Action   | Description                                 | Target date/s | Status as of December 2018 | Details and update     |
|---------|--|---|---------------|----------------------------|------------------------|
| IP-9    | Upgrade of ORP System at Torrens Creek   | Upgrade of ORP system at Torrens Creek.     | December 2018 | In Progress                | Pushed back until 2019 |
| IP-10   | Plumbers to inform EHO of Water Mains Breaks so that Water Sample can be taken | Plumbers to record details in diary/logbook | ASAP          | In Progress                | Ongoing                |

| IP item | Action                                | Description   | Target date/s   | Status as of December 2018 | Details and update   |
|---------|---------------------------------------|---|---|----------------------------|--|
| IP-11   | Investigation of Reticulation Network | <p>Investigation into condition of reticulation network and detailed assessment of water demands - Require reliable records for Mains Breaks.</p> <p>The following information is to be gathered each time there is a Mains Break: the pipe material, condition estimate, depth of the pipe and the type of soil. This information is then passed on to the DOE and QA/Asset Manager so that it can be entered into a graphical database (map info). Users will then be able to access a map of the reticulation network with various layers that will include; breaks, repairs, additions, type of pipe and condition.</p> <p>Interim: Ongoing data collection.</p> <p>Short-term: Record collection and set-up of GIS system</p> <p>Long-term: Ongoing data collection and updates of system</p> <p>Network analysis of Hughenden will be undertaken by GHD upon completion up changes to Hughenden's delivery system (Move from Demand-Supply to Supply-Demand).</p> | <p>Interim: Ongoing</p> <p>Short-term: 30th June 2014</p> <p>Long-term: Ongoing from 30th June 2014</p> <p>Network Analysis completed</p> | In Progress                | Engineering department has recently completed analysis of water and sewerage assets. This data will be utilised or the program |
| IP-12   | Air Scouring Program For Flinders.    | <p>Investigation into the cost of hiring contractors to undertake work. A program will be developed once costs are established.</p> <p>Interim: Ongoing flushing of Mains.</p> <p>Short-term: Investigation and cost analysis</p> <p>Long-term: Development of program.</p>   | <p>Interim: Ongoing</p> <p>Short-term: 30th June 2014</p> <p>Long-term: 30th June 2018 (Program implemented after this date).</p>         | Ongoing                    | Ongoing  |



| IP item | Action  | Description   | Target date/s   | Status as of December 2018 | Details and update  |
|---------|---|---|---|----------------------------|---|
| IP-13   | Long-term plan for the looping of Mains in Hughenden  | Looping of mains in order to avoid dead-ends. Will utilise information gathered during investigation of the reticulation network.<br>Interim: Ongoing flushing of mains.<br>Short-term: Design and Cost analysis.<br>Long-term: Implementation of program (starting from 15/16 financial year). | Interim: Ongoing.<br>Short-term: Completed<br>Long-term: 15/16 financial year (start date). Currently 90% complete.   | In Progress                | .   |
| IP-14   | Investigation of security at Prairie Stock Bore & investigate possibility of increasing volume of water from town bore. | Consult with Rural Lands Officer regarding ability of Council to fence the Stock Bore (currently on a stock route – non Council land).<br>Interim: Investigate<br>Short-term: Obtain approvals and develop cost estimates.<br>Long-term: Installation.  | Interim: Completed<br>Short-term: Completed<br>Long-term: 30th Dec 2018   | In Progress                | Council's Rural lands Officer is investigating different fencing options. Project may be pushed back to future budget.<br><br>Pushed back due to Budget constraints |
| IP-15   | Upgrade of Fencing at Torrens Creek Bore and Reservoir compound   | A new fence will be installed at the Torrens Creek reservoir once the new compound is finished. The fencing of the old bore will also be upgraded. The upgrade is currently occurring.  | Reservoir fence completed.<br>Erection of new Bore fence dependent upon the determination of whether a new bore will be established in Torrens Creek in the next 2 years. | Completed                  |   |

| IP item | Action   | Description   | Target date/s  | Status as of December 2018 | Details and update |
|---------|--|---|--|----------------------------|--------------------|
| IP-16   | Turbidity monitoring in Torrens Creek              | Weekly in-house turbidity monitoring of both Torrens Creek Source and Reticulation water.   | ASAP<br>Program to be in place by Dec 2017   | In Progress                | Ongoing            |
| IP-17   | Development of training program for Water officers | Investigation of training requirements for water officers.<br>Develop program and implement program. Fluoridation training provided by supplier of Fluoridation equipment.<br>Interim: Investigation into training required, courses offered and cost.<br>Short-term: Provision of Fluoridation training.<br>Long-term: Cert training for Water Officers. | Interim: Ongoing<br>Short-term: Completed<br>Long-term: TBA – dependent upon the upgrade to the Hughenden STP and Water Treatment Plant. Officers will undertake training in both areas. | In Progress                | In progress        |

| IP item      | Action  | Description  | Target date/s   | Status as of December 2018 | Details and update          |
|--------------|---|--|---|----------------------------|-----------------------------|
| IP-18        | Induction program for new water staff                               | Development of water specific induction training for water officers & 'Take 5's'.  | 31st Dec 2017 – updated version   | In Progress                |                             |
| IP-19        | Replacement of Lead-jointed concrete pipes                          | Ongoing replacement of Lead-jointed concrete pipes. Many pipes have been replaced over the past 4 years. Remaining pipes will be replaced.<br>Interim: Ongoing monitoring of water, collection of data for GIS system.   | Interim: Ongoing  | In Progress                |                             |
| <b>IP-20</b> | Investigation into connectivity of Torrens Creek bore to the River. | Interim: conduct monitoring of pesticides.<br>Short-term: investigate trends of monitoring results and compare to flows in River.<br>Long-term: dependent upon the results of the investigation.<br>Pesticide monitoring has started however now waiting for river to run as have been in drought for 6 years. | Interim: Ongoing<br>Short-term: 26th February 2018 (Over 100mm of rain in area so hoping River will run).<br>Long-term: TBA | Ongoing                    | Ongoing                     |
| <b>IP-21</b> | Water & Sewerage SOPs   | Refinement, development and documentation of operational procedures for Council water and sewerage services – this will be done by a third party   | June 2018   | Not completed              | Pushed back to 18/19 Budget |

| IP item      | Action            | Description   | Target date/s | Status as of December 2018 | Details and update |
|--------------|-------------------|---|---------------|----------------------------|--------------------|
| <b>IP 22</b> | Plumber's Logbook | Development and placement of logbook at each bore and treatment plant – designed so that Council staff and contractors can detail in the logbook the technical/non-technical work they have undertaken. | January 2018  | Ongoing                    | Ongoing            |