

Guidance:

# Water quality annual report

Section 26 of the *Safe Drinking Water Act 2003*

Regulations 16 and 17 of the *Safe Drinking Water Regulations 2015*

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# Preface

Victoria's *Safe Drinking Water Act 2003* (the Act) and *Safe Drinking Water Regulations 2015* (the Regulations) provide a catchment-to-tap risk management framework to ensure the supply of safe, high quality drinking water across the state. The Department of Health and Human Services (the department) administers this legislation.

In summary, the legislation requires water suppliers and water storage managers (collectively referred to as water agencies) to:

- develop and implement risk management plans
- meet water quality standards
- disclose information to the department and the public.

Disclosing information to the public ensures accountability and safeguards the integrity and trust in the state-owned water agencies, assisting to keep community confidence in Victoria's drinking water supplies.

One form of public disclosure is by reporting; section 26 of the Act requires water agencies to provide an annual report on the quality of drinking water and regulated water for each financial year. This annual report must be provided to the department no later than 31 October each year, and be made available to the public on or after the day the report is provided to the department.

The department has a role under the Act to promote public awareness and understanding of drinking water quality issues; water agency's annual reports are one of the mechanisms used to increase public awareness.

This document provides guidance as to how water suppliers and water storage managers can meet the annual reporting requirements under the Act and the Regulations. This guidance states the minimum requirements needed to comply. Water agencies are encouraged to provide further information and showcase achievements relating to drinking water and regulated water, to improve the public's awareness and understanding of the activities conducted and to emphasis the important role water agencies play in protecting and promoting public health.

# General information

## Introduction

Section 26 of the *Safe Drinking Water Act 2003* (the Act) requires water suppliers and water storage managers to provide the Secretary of the Department of Health & Human Services (the department) a report on the issues relating to the quality of drinking water and regulated water each financial year. This report must detail compliance with the requirements outlined in the Act and rr. 16-17 of the *Safe Drinking Water Regulations 2015* (the Regulations).

In accordance with s. 26(3) of the Act, the Secretary may by written notice require additional information in an annual report. No additional requirements have been published in the *Government Gazette* for this year's annual report.

### ***Safe Drinking Water Act 2003***

#### **Section 26 – Water suppliers or water storage managers to provide annual report**

- (1) A water supplier or water storage manager must give the Secretary a report, in respect of each financial year, on the issues relating to the quality of drinking water and regulated water that are specified by the regulations for the purposes of this section.
- (2) A water supplier or water storage manager must include in the report any other details that are required by the regulations or by the Secretary under subsection (3).
- (3) The Secretary may, by written notice published in the *Government Gazette*, require water suppliers or water storage managers to include specified details in any report required by this section.
- (4) The water supplier or water storage manager must give the report to the Secretary no later than 31 October.
- (5) The water supplier or water storage manager must ensure that copies of the report are made available to the public on or after the day the report is given to the Secretary.

## What to include in the annual report?

The department gives guidance to water agencies on what information is to be included in drinking water quality annual reports. Reports that follow this guidance are easier to assess for compliance against the safe drinking water legislation, allowing comments on draft reports to be provided in a timely manner before submission of final reports.

Annual reports are to cover one financial year, the reporting period being 1 July–30 June.

Water agencies should use the annual report as an opportunity to describe their risk management practices, any associated water quality issues which arose over the reporting period and proactive actions taken to protect water quality from catchment-to-tap.

### ***Safe Drinking Water Act 2003***

#### **Section 23 – Water quality monitoring information to be made publicly available**

- (1) A water supplier must make available for inspection by the public the results of any water quality monitoring program that it conducts on any drinking water supplied by it.
- (2) The results must be made available within 7 days after they are compiled.
- (3) A water supplier must not publish any information in purported compliance with this section that it knows is false or misleading in a material detail without including with the information details of the defect in the information.

Information on how interested readers may receive further information from the water agency (such as a contact number or web address) should also be included. A statement on how the water agency complies with s. 23 of the Act in relation to public disclosure of water quality monitoring information should also be provided.

## Glossary of terms

A glossary of terms to give clarity on technical issues and terms (including acronyms) should be included.

## How to use this guidance?

Part 1 gives guidance for water suppliers in accordance with r. 16 of the Regulations. Part 2 gives guidance for water storage managers relating to r. 17. Checklists are provided in the appendices to check all required content has been included in the report.

Tables provided in this guidance highlight the minimum content required. Water agencies may choose to include further information in their annual report.

## Lodgement of the annual report

A draft report should be submitted for review to the department by 19 September, allowing sufficient time for the water agency to make any required changes.

Section 26(4) of the Act requires the water supplier or water storage manager to provide the report to the department no later than 31 October.

As required by s. 26(5) of the Act, the final report must be made available to the public on or after the day it is provided to the department. This requirement may be met by having the report publically available for download from the water agency's website, and hard copies mailed out upon request.

An electronic copy of the final report in PDF format should be emailed to [water@dhhs.vic.gov.au](mailto:water@dhhs.vic.gov.au).

## Further information

Contact the Water Program by phone (1300 761 874) or via email ([water@dhhs.vic.gov.au](mailto:water@dhhs.vic.gov.au)).

Website:

<https://www2.health.vic.gov.au/public-health/water/drinking-water-in-victoria/water-guidance-notes>

# Part 1: Water supplier content guide

## Overview

Describe the overall water supply systems (from catchment-to-tap), the commitment to drinking water quality and the preventive measures applied to manage drinking water quality risks.

### Water supply systems

Provide a summary of each drinking water supply system. This should include a clear map or diagram of the water supply systems serviced. Detailed process control schematics are not required.

Include any major changes to source water supply arrangements during the reporting period from the previous reporting period and any other information the water supplier considers relevant.

A table similar to Table 1 can be provided to assist readers to better understand the water supply systems. Consider including water supply system information such as localities, population supplied, source water, storage reservoirs and treatment plants.

**Table 1: Example table for water supply systems**

Water sampling locality	Population supplied	Source water	Storage	Treatment plant
Locality A	2500	X river	Y storage	Z treatment plant

Water sampling localities in this table may be listed in alphabetical order, by common source or by water treatment plant. If possible, the information should be presented as a single table. During the reporting period there may be instances where water sampling localities have been changed. Include information on the gazettal date of the changes, either as a footnote to the table for minor changes or in accompanying text where further explanation is needed.

Population supplied for each water sampling locality should be rounded to the nearest 10. If converting the number of connections to population served, the calculation used should be explained.

### Source water

The water supplier should describe the various source waters used in its water supply systems. Include the catchment management authorities and water storage managers managing water prior to supply to the water supplier. This may include in general terms the nature, purpose and comprehensiveness of the raw water sampling program (e.g. raw water storages, natural water courses, catchments or reservoirs) for pathogens, harmful algae, chemicals and radiological parameters. Detail the interactions with other agencies on catchment management activities. For water suppliers where drinking water treatment processes were applied to raw water, give details of methods used in sanitary surveys and to quantify microbial hazards.

## Drinking water treatment processes r. 16(e)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (e) If the water supplier operates or maintains a drinking water treatment process—
- (i) a summary of the process by which the water supplied by the water supplier is disinfected or treated and any other processes applied to the water, and any issues arising out of the application of those processes; and
  - (ii) a list of all the chemicals and other substances, and any processes, used to disinfect or treat the water supplied, or to be supplied, by it for drinking purposes

Regulation 16(e)(i) requires the inclusion of details of the drinking water treatment processes applied to water supplied by a water supplier in the annual report. Regulation 16(e)(ii) requires information to be included about the chemicals and substances used. A template with examples is provided in Appendix 1.

Information describing the treatment processes, changes made and any periodic treatment activities are to be included for each drinking water supply system. This description should extend from the point raw water enters the treatment plant through to the customer tap (catchment-to-tap).

Information on the treatment processes and the chemicals associated with those processes (including water-soluble packaging that may be used to add chemicals) may be presented as shown in Table 2. Changes in the water treatment process between the previous and this reporting period should be clearly highlighted.

**Table 2: Example table for drinking water treatment processes - Water supplier**

Water sampling locality	Treatment plant	Treatment process <sup>^</sup>	Added substance/s	Comments
Locality A	B treatment plant	Membrane ultrafiltration Chloramination Chlorination Fluoridation	Sodium hypochlorite Aqueous ammonia Fluorosilicic acid	Changed chlorine disinfection method from chloramination to chlorination from 6 April to 2 May to reduce nitrification  Fluoride dosing installed (December)

<sup>^</sup> Explain treatment processes in the annual report's glossary if necessary.

### Issues

Regulation 16(e)(i) requires any issues from the application of treatment processes to be discussed.

These issues may include situations where there was insufficient treatment due to treatment process breakdowns or where there was loss of control of treatment processes leading to the potential or actual exceedances of drinking water quality standards.

Examples include clarifier malfunction leading to sub-optimal coagulation/flocculation, continued operation of treatment processes following breaches of critical control point critical limits, lengthy outages of the fluoride dosing system, alternative drinking water supply sought by the water supplier due to poor raw water quality or delays with treatment process repairs.

This discussion should include information on the effectiveness of any interim and long-term interventions, timing of remedial works or activities and any impacts on the quality of drinking water supplied.

Issues reported under s. 22 of the Act can be acknowledged in this section and cross referenced to details provided under the '*Emergency incident and event management*' section of the report.

If there were no issues, indicate this was the case.

## Emergency, incident and event management r. 16(a) & 16(b)

Regulation 16(a) and 16(b) requires information, actions and issues relating to emergencies, incidents and management of drinking water quality events by a water supplier to be included in its annual report. Examples include *E. coli* detections, boil water advisories, critical control point breaches, treatment (including disinfection) failures, dirty water caused by burst water mains which resulted in widespread public complaint and cross connection of recycled water to drinking water.

Details reported for any emergency, incident or event, which affected both the water supplier and water storage manager, should not contradict with information contained in each water agency's annual report.

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (a) information about actions taken by the water supplier in respect of each emergency, incident or event that has arisen that has affected—
  - (i) the quality of water supplied generally; and
  - (ii) the quality of water supplied where that supply posed a risk to human health;
- (b) any issues that may have arisen out of the actions referred to in paragraph (a);

### Known or suspected contamination reported under s. 22

Information on known or suspected contamination reported under s. 22 must be included.

For each report made to the department under s. 22, provide context of the event in relation to the affected water sampling localities. Clearly describe the event and include the issues identified, the actions taken to correct the issue and to reduce risk, and any preventive actions initiated to minimise the risk of the issue recurring.

### Safe Drinking Water Act 2003

#### Section 22 – Officer to report known or suspected contamination

- (1) This section applies if an officer of a water supplier, water storage manager or council believes or suspects, on reasonable grounds, that water supplied, or to be supplied, for drinking purposes—
  - (a) may be the cause of an illness; or
  - (b) may be the means by which an illness is being, has been or will be, transmitted; or
  - (c) may contain any pathogen, substance, chemical or blue-green algae toxin, whether alone or in combination, at levels that may pose a risk to human health; or
  - (d) may cause widespread public complaint.
- (2) On forming that belief or suspicion, the officer must immediately report his or her belief or suspicion to the Secretary, and must make the report in the form required by the Secretary.

### Situations not reportable under s. 22 which impacted or had the potential to impact the water quality, but not the safety, of the water supplied

Examples of situations not reportable under s. 22 of the Act may include significant changes in raw water

quality (e.g. through bushfires, extreme weather, black-water and low-oxygen events), fluoride concentration measured at the fluoridation plant exceeded or may have exceeded 1.5 mg/L but did not enter the drinking water supply, chemical spills or harmful algal blooms etc.

## Issues

Under r. 16(b), any issues that occurred from any actions referred to in r. 16(a) must be discussed.

## Presentation of information

Each situation should be clearly identified, described in narrative text and contained in the main body of the report. These situations are not to be reported solely in footnotes. A table summarising the information may be included.

The following information should be provided where applicable:

- the date, estimated duration and the nature of the emergency, incident, or event
- affected drinking water supplies and water sampling localities
- the actions taken in response to correct the issue and reduce risk
- preventive measures implemented to minimise the risk of the issue recurring, including those where the water supplier has implemented learnings across other assets within the network
- the nature of any communication with affected communities or the public

## Drinking water quality standards r. 16(f), 16(g) & 16(h)

Regulation 16(f) states that a water supplier's annual report must contain information relating to compliance with rr. 12-13, and Schedule 2.

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (f) information evidencing compliance or non-compliance (as the case requires) with regulations 12 and 13 and Schedule 2; and
- (g) information about actions taken by the water supplier when a drinking water quality standard set out in regulation 12 and Schedule 2 has not been met
- (h) an analysis of water sample information, data and results relating to the quality of drinking water supplied and a comparison of that information and data, and those results, with water sample information, data and results from the previous 2 financial years

### Safe Drinking Water Regulations 2015

#### Regulation 12 – Drinking water quality standards

- (a) if the drinking water contains a parameter specified in column 1 of the Table in Schedule 2, that the parameter does not exceed the standard set out in column 3 of that Table opposite that parameter;
- (b) if the drinking water contains an algal toxin, or any other pathogen, or any substance or chemical not specified in column 1 of the Table in Schedule 2, that the water does not contain that toxin, pathogen, substance or chemical, whether alone or in combination with another toxin, pathogen, substance or chemical, in such amounts that may pose a risk to human health.

## Safe Drinking Water Regulations 2015

### Regulation 13 – Frequency of sampling for drinking water

- (1) A water supplier must collect, or cause to be collected, samples of drinking water, in accordance with the sampling program set out in the water supplier's current risk management plan, and in any case at a frequency not less than the relevant sampling frequency.
- (2) The Secretary, on the Secretary's own motion, or on the application of a water supplier, may, by notice published in the Government Gazette, vary the frequency at which samples of drinking water are to be collected at a water sampling point located within a water sampling locality in respect of a parameter specified in column 1 of the Table in Schedule 2.

## Safe Drinking Water Regulations 2015

### Regulation 14 – Samples of drinking water must be analysed

- (1) A water supplier must cause every sample of drinking water collected in accordance with the water sampling program set out in its current risk management plan to be given to an accredited laboratory for analysis
- (2) A water supplier must ensure that every sample of drinking water given under subregulation (1) to an accredited laboratory for analysis is analysed by that accredited laboratory to measure, in relation to each of the parameters identified in the water sampling program set out in its current risk management plan, the amount of that parameter in the sample.

Under r. 16(f), drinking water sample analysis results for the reporting period must be presented along with whether the results had met or not met the relevant water quality standard.

Where water quality standards had not been met, r. 16(g) requires information on the corrective and preventive actions taken by the water supplier on receiving the non-compliant results to be included in the report. Compliance information relating to sampling frequency for drinking water covered by r. 13 must also be reported.

Drinking water quality standards are specified in r. 12(a) and r. 12(b). Three drinking water quality standards are specified in Schedule 2 of the Regulations. Regulation 12(b) refers to drinking water quality standards not specified in Schedule 2, but are identified within the drinking water sampling program.

Regulation 16(h) requires an analysis of all water quality sample information, data and results of drinking water supplied for the reporting period and a comparison to the corresponding information for the previous two financial years to be included in the report. If a larger dataset is available and its inclusion would assist in understanding this information, it may also be included.

Water suppliers should include a discussion or table of any changes made to the water sampling program since the previous reporting period, indicating the reasons for any changes made. Water quality analysis results from non-routine water sampling, that is not part of the water sampling program, such as incident investigations or projects, should not be included.

## Presentation of information

Table 3 provides a format in which drinking water quality standard results can be presented. Results should be reported to the same number of decimal places or significant figures, relevant to the reported water quality standard. Rounding is not a valid method to determine compliance with water quality standards or other health guideline values. Rounding is detailed further in *Guidance - Drinking Water Quality Standards*.<sup>1</sup>

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<sup>1</sup> <https://www2.health.vic.gov.au/Api/downloadmedia/%7BA1F6D255-D5C7-4B7E-AAE5-8B7451EDE81A%7D>

**Table 3: Drinking water quality standards reporting format**

Standard: Parameter X in drinking water should not exceed 1.0 mg/L.

Water sampling locality	Frequency of sampling	Number of samples	Drinking water quality standard (mg/L)	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)	Comments
Locality A	Monthly	12	1.0	0.2	0.1	0	
Locality B	Monthly	11 <sup>*</sup>	1.0	1.1	0.6	1 <sup>#</sup>	[Details]

\* One monthly sample was missed from locality B due to scheduling error.

# Discuss this event under 'Drinking water quality standard not met & actions undertaken' section underneath the standard results table.

Tables should list water sampling localities in alphabetical order. For localities that have been merged or split during the reporting period, report the data for each water sampling locality pre- and post-merger or split and include explanatory text.

Any variations to the sampling frequency specified in the drinking water sampling program or gazetted in accordance with r. 13 must be noted. Where the frequency has changed, provide an explanation.

Non-compliance with r. 13(a) or r. 14, such as missed samples or where samples were collected but not analysed must also be discussed.

Analysis results must include all drinking water samples specified in the drinking water sampling program irrespective of the sample location type (e.g. customer tap, water storage tank, entry points). For water suppliers where sampling was conducted at water storage tanks not located within water sampling localities, results must be reported in the water sampling localities to which the water storage tank supplies. That is, if a water storage tank supplies to two or more water sampling localities, results must be reported in all the relevant water sampling localities, as water in storage is representative of the water supplied to all relevant localities. Include explanatory text as needed.

Water suppliers must analyse each water quality standard's results with the previous two financial years. This comparison may be presented numerically or by describing whether water quality performance has improved, declined or remained the same over the reporting periods. This may be included in the table or presented separately as part of the discussion for each standard. Different methods of analysis may be chosen by the water supplier to assist with presenting the analysis. A discussion about any works, programs and projects that highlight continuous improvement should also be included.

If all drinking water supplies met the relevant drinking water quality standard, and there were no reports made under s. 22 relevant to the standard for any of the required samples collected and analysed, indicate this was the case.

### Drinking water quality standard not met & actions undertaken

A 'Drinking water quality standard not met & actions undertaken' section underneath the standard table must be included if any water samples did not meet the water quality standard under s. 18 of the Act during the reporting period.

### **Safe Drinking Water Act 2003**

#### **Section 18 – Notification required if non-complying water supplied**

A water supplier must notify the Secretary in writing if it becomes aware that the drinking water it is supplying to another person does not comply, or is not likely to comply, with any relevant water quality standard and must do so within 10 days after it becomes aware of that fact.

If any routine drinking water samples for a water sampling locality did not, or was not likely to, comply with the relevant water quality standard, present and discuss the results. For each water quality standard not met discuss the actions taken to manage the event; the corrective actions taken to return drinking water to specification and preventive measures implemented to reduce risk of future recurrence. Related reports made under both s. 18 and s. 22 should be acknowledged here and a cross-reference made to the details provided under *Emergency incident and event management* section or vice versa to avoid duplication in the report.

More specific guidance on reporting of Schedule 2 standards is provided below.

### **Presentation of Schedule 2 drinking water quality standards - r. 12(a)**

#### ***Escherichia coli***

Any *E. coli* detection must be reported under s. 22, and discussed under the '*Emergency, incident and event management*' section.

Additionally, *E. coli* detections will require investigations to identify the potential cause of contamination and whether the detection was representative of the drinking water supplied. The criteria outlined in Schedule 2, paragraph (c) of the Regulations is to be considered when concluding the investigation.

### **Safe Drinking Water Regulations 2015**

#### **Schedule 2 – Drinking water quality standards**

##### ***Escherichia coli***

- (c) the investigation has concluded that the results of the analysis conducted in accordance with regulation 14 were not representative of the water in the relevant water sampling locality because the investigation established that—
- (i) all other factors that would indicate the presence of *Escherichia coli* in that water are not present in the water in the water sampling locality at the time of the investigation; and
  - (ii) the drinking water treatment process applied, or other specified actions taken by the water supplier, are such as would be reasonably expected to have eliminated the presence of *Escherichia coli* in the water sampling locality at the relevant time; and
  - (iii) all plant and infrastructure associated with the water treatment process were operating to specification at all relevant times; and
  - (iv) there were no issues arising from degradation of plant or infrastructure in or around the relevant water sampling locality that could reasonably be suspected to have contributed to the presence of *Escherichia coli* in the drinking water in that water sampling locality.

If the investigation did not meet the criteria for a false positive sample, the *E.coli* detection is considered representative of the drinking water supplied in the relevant locality. This will not have met the quality standard, requiring the department to be notified under s.18.

All routine sample *E. coli* results should be recorded as shown in Table 4. Where *E. coli* detections were notified under s.18 of the Act, a discussion on how the standard was not met and actions undertaken should be included.

**Table 4: Example table for *Escherichia coli***

Standard: All samples of drinking water collected are found to contain no *Escherichia coli* per 100 millilitres of drinking water, with the exception of any false positive sample.

Water sampling locality	Frequency of sampling	Number of samples	Maximum detected (orgs/100mL)	Number of detections and investigations conducted (s. 22)*	Number of samples where standard was not met (s. 18)
Locality A	Weekly	52	1	2	0
Locality B	Twice-weekly	104	1	3	1 <sup>#</sup>

\* Ensure these are discussed in 'Emergency Incident and event management'

<sup>#</sup> Discuss this event under 'Drinking water quality standard not met & actions undertaken' underneath the *E. coli* results table.

### Total trihalomethanes

#### Safe Drinking Water Regulations 2015

#### Schedule 2 – Drinking water quality standards

#### Total trihalomethanes

Less than or equal to 0.25 milligrams per litre of drinking water.

All water sampling program sample results for total trihalomethanes should be presented as shown in Table 5. Any relevant s. 18 notifications require a discussion on how the standard was not met and on the corrective and preventive actions undertaken.

**Table 5: Example table for total trihalomethanes**

Standard: Total trihalomethanes less than or equal to 0.25 milligrams per litre of drinking water.

Water sampling locality	Frequency of sampling	Number of samples	Drinking water quality standard (mg/L)	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Locality A	Monthly	11 <sup>*</sup>	0.25	0.26	0.17	1 <sup>#</sup>
Locality B	Monthly	12	0.25	0.15	0.08	0

\* One missed sample due to laboratory scheduling error

<sup>#</sup> Discuss this event under 'Drinking water quality standard not met & actions undertaken' underneath the THM results table.

## Turbidity

### Safe Drinking Water Regulations 2015

#### Schedule 2 – Drinking water quality standards

##### Turbidity

The 95th percentile of results for samples in any 12 month period must be less than or equal to 5.0 Nephelometric Turbidity Units (NTU).

The turbidity standard utilises the 95th percentile of results in any 12 month period to determine compliance with the standard.

All water sampling program sample results for turbidity in a rolling 12 month period should be presented as shown in Table 6. Relevant s. 18 notifications require a discussion on why the standard was not met along with corrective and preventive actions undertaken.

Note: comparison of the turbidity results against the previous two financial years should be based on the corresponding set of results and not on previous reported compliance performance.

**Table 6: Example table for turbidity**

Standard: The 95th percentile of results for samples in any 12 month period must be less than or equal to 5.0 Nephelometric Turbidity Units (NTU).

Water sampling locality	Sampling frequency	Number of samples	Maximum turbidity in a sample (NTU)	Maximum 95th percentile of turbidity results in any 12 months (NTU)	Number of 95th percentile of results in any 12 months above standard (s. 18)
Locality A	Weekly	52	16.4	5.1	1 <sup>#</sup>
Locality B	Weekly	52	4.8	0.8	0

<sup>#</sup> Discuss this event under 'Drinking water quality standard not met & actions undertaken' underneath the turbidity results table.

### Presentation of other water quality standards (algal toxin, pathogen, chemical or substance that may pose a risk to human health) - r. 12(b)

Regulation 12(b) requires water suppliers to ensure drinking water supplied does not contain any toxin, pathogen, substance or chemical, whether alone or in combination with another toxin, pathogen, substance or chemical, in such amounts that may pose a risk to human health. This regulation refers to drinking water analysis results for parameters not specified in Schedule 2, but included in the water supplier's risk assessment, sampled and analysed in accordance with its drinking water sampling program.

These water quality standard results should be presented in the annual report as per Table 3.

Table 7 and 8 provide more examples of suggested drinking water quality standards reporting format.

**Table 7: Example table for copper**

Standard: The total concentration of copper in drinking water should not exceed 2.0 mg/L.

Water sampling locality	Frequency of sampling	Number of samples	Drinking water quality standard (mg/L)	Maximum (mg/L)	Average (mg/L)	Number of samples where standard was not met (s. 18)
Locality A	Monthly	12	2	0.2	0.1	0

**Table 8: Example table for fluoride**

Standard: The total concentration of fluoride in drinking water should not exceed 1.5 mg/L.

Water sampling locality	Frequency of sampling	Number of samples	Drinking water quality standard (mg/L)	Target optimum operating fluoride concentration (mg/L)	Maximum (mg/L)	Average* (mg/L)	Number of samples where standard was not met (s. 18)
Locality A	Monthly	12	1.5	0.8	1.2	0.8	0

\* Note: under s. 5(3) of the *Health (Fluoridation) Act 1973* fluoride added to drinking water must not result in an average optimum concentration in excess of one part fluoride per million parts of water.

Aesthetic drinking water parameters tested as part of the water supplier’s water sampling program such as iron, hardness, pH and colour are to be reported under an ‘*Aesthetic characteristics*’ section.

## Aesthetic characteristics r. 16(k)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (k) a summary of steps taken by the water supplier to manage the aesthetic characteristics of the drinking water supplied by it, including steps taken to manage the taste, odour, clarity and pH of the drinking water supplied;

Drinking water parameters monitored to manage aesthetics such as pH, alkalinity, hardness, iron and colour, should be reported as per Table 9. Further information, such as any aesthetic operational benchmarks set should be included, along with an explanation of how this aesthetic benchmark has been derived (e.g. using maximum value, mean value, percentile or confidence intervals, etc.).

**Table 9: Example table for pH**

Water sampling locality	Frequency of sampling	Number of samples	Minimum	Maximum	Aesthetic operating range
Locality A	Monthly	12	6.7	8.1	6.5 – 8.5

Note: the minimum result is optional for parameters other than pH, where both a minimum and maximum should be listed.

If there were issues in the reporting period with the taste, odour, colour or pH of the drinking water supplied, or there have been instances where the drinking water did not satisfy any aesthetic guideline values (either as set out in the *Australian Drinking Water Guidelines* or determined as appropriate by the water supplier), include a short discussion on how the issue was managed, including the cause, corrective actions taken in response and long term preventive measures.

## Water quality complaints r. 16(j)

### Safe Drinking Water Regulation 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (j) a summary of complaints received by the water supplier relating to the quality of drinking water supplied and a summary of the responses and analysis of the issues arising from the complaints;

A complaint is defined as a written or verbal expression regarding an issue with the quality of the drinking water, which requires resolution.

The number of complaints received by type and water sampling locality should be presented as indicated in Table 10 and 11. The type of complaints categories reported should be the types used by the water supplier.

A discussion outlining any contributing factors, the general response to customer complaints, and any corrective actions undertaken should be included. Media releases and announcements made as result of complaints should also be discussed in this section.

An analysis of the issues arising from the complaints and a comparison with previous reporting periods should be provided, stating whether there has been an increase, decrease or no change.

**Table 10: Example table for types of complaints compared to previous reporting periods**

Type of complaints	Number of complaints			Comparison with previous reporting periods	Comments
	Current reporting period	Previous A reporting period	Previous B reporting period		
Alleged illness	3	3	2	No significant change	Nil.
Dirty water	128	93	85	Increase of thirty five complaints from previous reporting period.	A valve malfunction caused reverse water flow through the reticulation system for the E water sampling locality. Forty three wide spread public complaints were received. Refer to s. 22 report in the 'Emergency, incident and event management' section for further details.
Taste or odour	34	6	10	Increase of twenty eight complaints from previous reporting period.	MIB and geosmin found in drinking water in the C water sampling locality. Treatment Plant D does not have powdered activated carbon dosing available.
White water	10	6	2	Increase of four complaints from previous reporting period.	Six complaints due to a water main burst event in B water sampling locality in January 2017.
Other	8	10	9	Types of other complaints not comparable to previous period.	Complaints included internal plumbing issues. Corrosion of copper galvanised pipes.

**Table 11: Example table for types of complaints by water sampling locality**

Water sampling locality	Type of complaint					Total complaints
	Alleged illness	Dirty water	Taste or odour	White water	Other	
Locality A	0	25	0	2	2	29
Locality B	1	14	2	6	0	23
Locality C	0	13	21	0	3	37
Locality D	1	30	10	1	1	43
Locality E	1	46	1	1	2	51

## Risk management plan audit results r. 16(d)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (d) a summary of the findings of the most recent risk management plan audit and any issues that the approved auditor raised during the risk management plan audit;

If a risk management plan audit was conducted during the reporting period, the outcome and findings of the audit must be stated, including improvement opportunities and observations raised by the auditor. Include a copy of the audit certificate in the report.

A progress summary of actions taken by the water supplier during the reporting period should be included which addresses any identified improvement opportunities and observations made by auditors during previous risk management plan audits.

## Undertakings r. 16(c)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (c) a summary of every written undertaking by the water supplier accepted by the Secretary under section 30 of the Act;

Provide a summary of any undertakings which were in effect during the reporting period. Include a discussion on why an undertaking was sought, activities conducted (or planned) to alleviate the issue, timeframes, milestones and progress. Related community or stakeholder consultation activities should also be provided.

The summary may be presented as shown in Table 12. If there were no undertakings in place during the reporting period, this section can be excluded from the report.

**Table 12: Example table for undertakings - Water supplier**

Water supply	Nature of contravention	Proposed actions to be taken to rectify contravention	Interim risk management actions	Start date	End date	Status at 30 June
Locality A	Multiple water quality standard failure for X parameter	[Details]	[Details]	1/1/15	30/3/17	Completed

## Aesthetic standard variations r. 16(i)(i)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (i) a summary of every—
  - (i) variation in aesthetic standards approved under section 19 of the Act in respect of drinking water supplied by the water supplier and any conditions imposed under section 21 of the Act;

This regulation refers to variations of aesthetic standards. If there were no s. 19 variations in place nor any s. 21 notices issued during the reporting period, this can be excluded from the report.

## Exemptions r. 16(i)(ii)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (i) a summary of every—
  - (ii) exemption from a water quality standard approved under section 20 of the Act in respect of drinking water supplied by the water supplier and any conditions imposed under section 21 of the Act;

This regulation refers to exemptions from water quality standards. If there were no s. 20 exemptions in place and no s. 21 notices issued, this can be excluded from the report.

## Regulated water r. 16(l) & 16(m)

### Safe Drinking Water Regulations 2015

#### Regulation 16 – Additional details to be included in annual reports of water suppliers

- (l) details of any regulated water supplied by the water supplier and the declaration under section 6 of the Act in respect of that regulated water;
- (m) details of the steps taken in accordance with section 25 of the Act.

Details of regulated water supplies are to be included in the report. The definition of regulated water is “water that is not intended for drinking but could reasonably be mistaken as drinking water”. Details about the supplies must be provided as shown in Table 13. Where a regulated water declaration supply relates to water that was previously a drinking water supply, this change needs to be explained.

If no regulated water was supplied during the reporting period, indicate this was the case.

**Table 13: Regulated water supplies**

Regulated water supply	Source water	Gazettal date	Population supplied
Town X	Brown Creek	1/1/15	800

Water suppliers are required under s. 25 of the Act to report on the steps taken to make the public aware of regulated water.

***Safe Drinking Water Act 2003***

**Section 25 – Warnings to be given if regulated water supplied**

A water supplier who supplies regulated water must take all reasonable steps to ensure that the intended recipients of the water are made aware of the nature of the water and of the health risks that may arise from the use of the water.

Provide a summary that describes how intended users of regulated water are made aware of the quality of the water and the potential health risks from the use of that water. The summary may include reference to:

- signage warning the public that the regulated water is not fit for drinking
- management of publicly accessible taps so regulated water cannot be accidentally consumed
- communication strategies and messages to advise all customers, particularly community stakeholders, customers operating food premises, accommodation premises, healthcare facilities and schools, that the water is not intended for drinking
- management of supply where water is not fit for other non-drinking purposes, such as showering.

# Part 2: Water storage manager content guide

## Overview

Describe the overall water supply systems (from catchment-to-tap), the commitment to drinking water quality and the preventive measures applied to manage source water risks.

### Water supply systems

Provide a summary of each water supply system including where the raw water for each water supplier is sourced, from the catchment to the point of supply. A table similar to Table 14 can be provided to assist readers to better understand the water supply system serviced.

State whether water supplied to a water supplier has been treated before supply or supplied as raw water.

Include a clear map or diagram of the water supply systems serviced. Detailed process control schematics are not required.

Highlight any changes to source water supply arrangements during the reporting period from the previous period. Include any other information the water storage manager considers relevant, for example water quality improvement monitoring programs, water catchment projects and research projects.

**Table 14: Example table for water supply systems**

Catchments	Source water	Raw water storage area	Treatment	Treatment plant	Treatment storages	Water suppliers
Catchment Y	River Y	Storage Y	No	N/A	Treatment Water Storage Tank A	C Water Agency
Catchment X	River X	Storage X	Yes	E Treatment plant	Treatment Water Storage Tank B	D Water Agency E Water Agency

### Source water

Water storage managers should describe the various source waters it manages, detail the catchment management authorities and water suppliers for its water supply systems. This may include in general terms the nature, purpose and comprehensiveness of the raw water sampling program (e.g. raw water storages, natural water courses, catchments or reservoirs) for pathogens, harmful algae, chemicals and radiological parameters, and interactions with other agencies regarding catchment management activities. For water storage managers where drinking water treatment processes were applied to raw water, provide details of methods used in sanitary surveys and to quantify microbial hazards.

## Drinking water treatment processes r. 17(e)

### Safe Drinking Water Regulations 2015

#### Regulation 17 – Additional details to be included in annual reports of water storage managers

- (e) if the water storage manager operates or maintains a drinking water treatment process—
- (i) a summary of the process by which the water supplied by the water storage manager is disinfected or treated and any other processes applied to the water, and any issues arising out of the application of those processes; and
  - (ii) a list of all the chemicals and other substances, and any processes, used to disinfect or treat the water supplied, or to be supplied, by it for drinking purposes;

Regulation 17(e)(i) requires the inclusion of details of the drinking water treatment processes applied to the water supplied by a water storage manager in the annual report. Regulation 17(e)(ii) requires information about the chemicals and substances used to be included. A template with examples is provided in Appendix 1.

If the water storage manager does not apply any drinking water treatment processes before supplying its water suppliers, indicate this is the case.

Information describing the treatment processes, changes made and any periodic treatment activities are to be included for each drinking water supply system. This description should extend from the point raw water enters the treatment plant through to the water supplier off-take point.

Information on the treatment processes and the chemicals associated with those processes (including water-soluble packaging that may be used to add chemicals) should be presented as shown in Table 15. Changes in the water treatment process between the previous and this reporting period should also be highlighted.

**Table 15: Example table for drinking water treatment processes - Water storage manager**

Water supply system	Treatment plant	Treatment process <sup>^</sup>	Added substance/s	Role of each process
X supply system	D treatment Plant	Chlorination Fluoridation	Chlorine gas Fluorosilicic acid	Disinfection Provide oral health benefit

<sup>^</sup> See Appendix 1 for the level of requested detail in relation to water treatment processes.

### Issues

Regulation 17(e)(i) requires any issues from the application of treatment processes to be discussed.

These issues may include situations where there was insufficient treatment due to treatment process breakdowns and occasions where there was loss of control of treatment processes leading to exceedances of drinking water quality standards of water suppliers.

Examples include clarifier malfunction leading to sub-optimal coagulation/flocculation, continued operation of treatment processes following breaches of critical control point critical limits, alternative drinking water supply sought by the water storage manager due to poor raw water quality or delay with treatment process repairs. This discussion is to include information on the effectiveness of any interim and long-term interventions, timing of remedial works or activities and any impacts on the quality of drinking water supplied.

Issues reported under s. 22 of the Act can be acknowledged in this section and cross referenced to details provided under the '*Emergency incident and event management*' section of the report. If there were no issues, indicate that this was the case.

## Emergency incident and event management r. 17(a) & 17(b)

Regulation 17(a) and 17(b) requires information, actions and issues relating to emergencies, incidents and management of drinking water quality events by a water storage manager to be included in its annual report.

Details reported for any emergency, incident or event, which affected both the water supplier and water storage manager, should not contradict with information contained in each water agency's annual report.

### Safe Drinking Water Regulation 2015

#### Regulation 17 – Additional details to be included in annual reports of water storage managers

- (a) information about actions taken by the water storage manager in respect of each emergency, incident or event that has arisen that has affected—
  - (i) the quality of water supplied generally; and
  - (ii) the quality of water supplied where that supply posed a risk to human health; and
- (b) any issues that may have arisen out of the actions referred to in paragraph (a);

### Known or suspected contamination reported under s. 22

Information on known or suspected contamination reported under s. 22 must be included.

For each report made to the department under s. 22, provide context of the event in relation to the affected water suppliers and water sampling localities. Clearly describe the event and include the issues identified, the corrective actions taken to alleviate the issue and to reduce risk, and any preventive actions initiated to minimise the risk of the issue recurring.

### Safe Drinking Water Act 2003

#### Section 22 – Officer to report known or suspected contamination

- (1) This section applies if an officer of a water supplier, water storage manager or council believes or suspects, on reasonable grounds, that water supplied, or to be supplied, for drinking purposes—
  - (a) may be the cause of an illness; or
  - (b) may be the means by which an illness is being, has been or will be, transmitted; or
  - (c) may contain any pathogen, substance, chemical or blue-green algae toxin, whether alone or in combination, at levels that may pose a risk to human health; or
  - (d) may cause widespread public complaint.
- (2) On forming that belief or suspicion, the officer must immediately report his or her belief or suspicion to the Secretary, and must make the report in the form required by the Secretary.

### Situations not reportable under s. 22 which impacted or had the potential to impact the water quality supplied to the water supplier.

Examples of situations not reportable under s. 22 of the Act include significant changes in raw water quality (e.g. through bushfires, extreme weather, black-water and low oxygen events), chemical spills, harmful algae, etc.

### Issues

Under r. 17(b), any issues that occurred from any actions referred to in r. 17(a) must be discussed.

## Presentation of information

Each situation should be clearly identified, described in narrative text and contained in the main body of the report. These situations are not to be reported solely in footnotes. A table summarising the information may be included.

The following information should be provided where applicable:

- the date, estimated duration and the nature of the emergency, incident, or event
- affected water suppliers and drinking water supplies which were affected
- the actions taken in response to correct the issues or reduce risks
- preventive measures implemented to minimise the risk of the issue recurring, including those where the water storage manager has implemented across its entire supply network
- the nature of communication with affected communities and/or water suppliers.

## Risk management plan audit results r. 17(d)

### Safe Drinking Water Regulation 2015

#### Regulation 17 – Additional details to be included in annual reports of water storage managers

- (d) a summary of the findings of the most recent risk management plan audit and any issues that the approved auditor raised during the risk management plan audit;

If a risk management plan audit was conducted during the reporting period, the outcome and findings of the audit must be stated, including improvement opportunities and observations raised by the auditor. Include a copy of the audit certificate in the report.

A progress summary of actions taken by the water storage manager during the reporting period should be included which addresses any identified improvement opportunities and observations made by auditors during previous risk management plan audits.

## Undertakings r. 17(c)

### Safe Drinking Water Regulation 2015

#### Regulation 17 – Additional details to be included in annual reports of water storage managers

- (c) a summary of every written undertaking by the water storage manager accepted by the Secretary under section 30 of the Act;

Provide a summary of any undertakings which were in effect during the reporting period. Include a discussion on why an undertaking was sought, activities conducted (or planned) to alleviate the issue, timeframes, milestones and progress. Related community or stakeholder consultation activities must also be provided.

The summary may be presented as shown in Table 16. If there were no undertakings in place during the reporting period, this section can be excluded from the report.

**Table 16: Example table for undertakings - Water storage manager**

Water supply	Describe contravention	Proposed actions to be taken	Interim risk management actions	Start date	End date	Status at 30 June
System A	Communication failures	[Details]	[Details]	1/1/15	30/12/16	In progress

## Exemptions r. 17(f)

### Safe Drinking Water Regulation 2015

#### Regulation 17 – Additional details to be included in annual reports of water storage managers

- (f) details of any exemption granted to the water storage manager under section 8 of the Act and any condition imposed in relation to any exemption.

This regulation refers to an exemption from preparing, implementation and review of a risk management plan. If there were no s. 8 exemptions in place during the reporting period, this can be excluded from the report.

# Appendix 1: Example template for reporting drinking water treatment processes

		Drinking water treatment processes																				
		Clarification			Filtration		Disinfection				Other			Added substances								
		Coagulation and flocculation	Sedimentation or clarification	Dissolved air flotation	Granular media filter	Membrane	Chlorine gas	Sodium hypochlorite	Chlorine dioxide	Ultraviolet (UV)	Ozone	Activated carbon (PAC/GAC)	Ion exchange	Reverse osmosis	Sludge-handling (mechanical with chemical addition)	Lime/soda ash/caustic soda/carbon dioxide/sulphuric acid	Aluminium-based coagulants	Iron-based coagulants	Polymers	Chlorine	Ammonia	Fluoride
Water treatment plant	A		X				X				X	X			X	X	X		X	X		X
	B					X	X				X	X			X	X	X		X	X		X
	C	X		X	X		X			X		X			X	X	X		X	X	X	X
	D	X	X				X			X		X	X		X	X	X		X	X	X	X
	E	X	X	X	X			X			X		X			X	X		X	X		
	F	X	X							X				X		X		X				X

# Appendix 2: Checklist for water suppliers

## Overview

- State commitments to drinking water quality and proactive management of water quality risks
- Summarise water supply systems including a map or diagram and Table 1 - Water supply systems
- Discuss any major changes to water supply arrangements since the previous reporting period
- Discuss source waters in supply systems and (if applicable) discuss how source water risks are quantified and managed

## Drinking water treatment processes r. 16(e)

- Include Table 2 - Drinking water treatment processes - Water supplier and Appendix 1 Table
- Describe the role of each treatment process and chemical additive (or include in glossary of terms)
- Discuss any major changes to treatment processes since previous reporting period
- Discuss any issues arising from treatment processes
- Acknowledge reports made under s. 22 and cross-reference to 'Emergency incident and event management'

## Emergency incident and event management r. 16(a) & 16(b)

- Include information on each situation reported under s. 22
- Include relevant information on the actions taken, issues experienced and preventive measures identified with each situation reported
- Discuss other events not reportable under s. 22 of the Act under separate headings

## Drinking water quality standards r. 16(f), 16(g) & 16(h)

### Presentation of information

#### *Escherichia coli*

- Include Table 4 - E. coli standard and a compliance analysis of the E. coli results against the standard for the reporting period
- Provide a comparison of the E. coli results from the reporting period with the two previous financial years
- Discuss any variations to the sampling frequency specified in the drinking water sampling program or gazetted in accordance with r. 13
- If any samples were not taken at the frequency specified in the water sampling program and/or analysed, provide further explanations

#### **Trihalomethanes**

- Include Table 5 - Trihalomethanes standard and a compliance analysis of the total trihalomethanes results against the standard for the reporting period

- Provide a comparison of the trihalomethanes results from the reporting period with the two previous financial years
- Discuss any variations to the sampling frequency specified in the drinking water sampling program or gazetted in accordance with r. 13
- If any samples were not taken at the frequency specified in the water sampling program and/or analysed, provide further explanations

### **Turbidity**

- Include Table 6 - Turbidity standard and a compliance analysis of the turbidity results against the standard for the reporting period
- Provide a comparison of the turbidity results from the reporting period with the two previous financial years
- Discuss any variations to the sampling frequency specified in the drinking water sampling program or gazetted in accordance with r. 13
- If any samples were not taken at the frequency specified in the water sampling program and/or analysed, provide further explanations

### **Other water quality standards r. 12(b) (algal toxin, pathogen, chemical or substance that may pose a risk to human health)**

- Include Table 3 for each r. 12(b) drinking water quality standard monitored from the drinking water sampling program and a compliance analysis for each set of drinking water quality standard results against the relevant standard for the reporting period
- Provide comparisons of each drinking water quality standard results from the reporting period against the corresponding sets of results for the two previous financial years
- Discuss any variations to each relevant standard sampling frequency specified in the drinking water sampling program or gazetted in accordance with r. 13
- If any samples were not taken at the frequency specified in the water sampling program and/or analysed, provide further explanations

### **Drinking water quality standards not met & actions undertaken**

- Where a relevant standard was not met and reported under s. 18, include a discussion of the results, actions and preventive measures taken underneath each standard table. Cross reference to s. 22 in 'Emergency, incident and event management' section (if applicable)

### **Aesthetic characteristics r. 16(k)**

- Include Table 9 - Aesthetic parameters for each water sampling locality
- If applicable, discuss any issues regarding taste, odour, clarity or pH during reporting period
- Include a brief summary of steps taken to manage the aesthetic issues

### **Water quality complaints r. 16(j)**

- Define complaint and include Table 10 and 11

- Discuss general response, contributing factors, corrective actions, community meetings, public communications and media releases issued in response to customer complaints
- Provide an analysis of issues arising from the complaints received and a comparison to previous financial years

### **Risk management plan audit results r. 16(d)**

- If a risk management plan audit was conducted during the reporting period discuss whether the risk management plan met the obligations of the Act during the audit period and include the audit certificate in the report
- Summarise the findings of the audit
- Describe any specific improvement opportunities and observations identified by the auditor
- Report on progress with identified improvement opportunities from previous audits (if applicable)

### **Undertakings r. 16(c)**

- Include Table 12 - Undertakings and provide a summary of relevant information related to undertakings (if applicable)

### **Aesthetic standard variations r. 16(i)(i)**

- Provide details of any variations to aesthetic standards granted under s. 19 of the Act (if applicable)

### **Exemptions r. 16(i)(ii)**

- Provide details of any exemptions granted under s. 20 of the Act (if applicable)

### **Regulated water r. 16(l) & 16(m)**

- Include definition of 'regulated water' provided in guidance
- Include Table 13 - Regulated water supplies (if applicable)
- Discuss any regulated water supplies which were previously regarded as drinking water (if applicable)
- Summarise regulated water awareness and risk management activities undertaken under s. 25 (if applicable)

# Appendix 3: Checklist for water storage managers

## Overview

- State commitments to drinking water quality and proactive management of source water risks
- Summarise water supply systems including a map or diagram and Table 14 - Water supply systems
- Discuss any major changes to water supply arrangements since the previous reporting period
- Discuss source waters in supply systems and (if applicable) discuss how source water risks are quantified and managed

## Drinking water treatment processes r. 17(e)

- State if water supplied to a water supplier has been treated before supply or is supplied as raw water
- Include Table 15 - Drinking water treatment processes - Water storage manager and Appendix 1 Table
- Describe the role of each treatment process and chemical additive (or include in glossary of terms)
- Discuss any major changes to treatment processes since previous reporting period
- Discuss any issues arising from treatment processes
- Acknowledge reports made under s. 22 and cross-reference to 'Emergency incident & event management'

## Emergency incident and event management r. 17(a) & 17(b)

- Include information on each situation reported under s. 22
- Include relevant information on the actions taken, issues experienced and preventive measures identified with each situation reported
- Discuss other events not reportable under s. 22 of the Act under separate headings

## Risk management plan audit results r. 17(d)

- If a risk management plan audit was conducted during the reporting period discuss whether the risk management plan met the obligations of the Act during the audit period and include the audit certificate in the report
- Summarise the findings of the audit
- Describe any improvement opportunities and observations identified by the auditor
- Report on progress with identified improvement opportunities from previous audits (if applicable)

## Undertakings r. 17(c)

- Include Table 16 - Undertakings and provide a summary of relevant information related to undertakings

## Exemptions r. 17(f)

- Provide details of any exemptions granted under s. 8 of the Act (if applicable)