

Specification of water sampling localities and water sampling points

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Introduction

Requirements relating to water sampling localities and water sampling points are included in the *Safe Drinking Water Regulations 2005* (the Regulations), principally in regulations 4 and 5.

The intent of these regulations is to:

- Divide the State's drinking water supplies into discrete water sampling localities, as these localities will be the basic units by which compliance to water quality standards will be assessed.
- Specify water sampling points within each water sampling locality from which drinking water samples are to be collected, for compliance purposes to the regulations.

This document details the process to be used by the Department of Human Services (DHS), for recommendation to the Secretary, for the specification of water sampling localities and water sampling points. It also details the information required from water suppliers.

Responsibilities in specifying water sampling localities and water sampling points

Department of Human Services

Under the Regulations, the Secretary to the Department of Human Services (the Department) may specify water sampling localities and water sampling points within drinking water supplies.

The Department, in relation to water sampling localities and water sampling points will:

- Establish a process to assess water sampling localities and water sampling points and communicate these processes to water suppliers;
- Detail the general criteria to be used when specifying water sampling localities and water sampling points;
- Specify water sampling localities with regard to the nature and design of the distribution system, the sources of the drinking water supplied, and any other relevant matter;
- Describe the area of a water sampling locality by reference to its boundaries and, in describing those boundaries, use a description that is based on the descriptors listed in sub-regulation 4(4);
- Specify water sampling points within water sampling localities, based on their representativeness of the drinking water supplied in that locality;
- Publish specified water sampling localities in the Government Gazette;
- Establish and maintain an internal register of specified water sampling localities for each water supplier;
- Establish and maintain a public register of water sampling points and ensure that the register is available for inspection; and
- Apply changes to specified water sampling localities and water sampling points as required.

Water suppliers

Water suppliers are required by the Secretary to collect samples of drinking water from specified water sampling points within specified water sampling localities in accordance with relevant parts of the *Safe Drinking Water Regulations 2005*.

To meet the requirements of sub-regulation 11(1), water suppliers must ensure that for each parameter in column 1 of the table in Schedule 2 of the *Safe Drinking Water Regulations* drinking water is collected from a specified water sampling point within a specified water sampling locality.

In order to meet these requirements water suppliers are asked to provide:

- A list of proposed water sampling localities to the Department along with the rationale behind describing each proposed water sampling locality as a unique area of water quality; and
- A list of proposed water sampling points within each proposed water sampling locality to the Department, and that the proposed points are representative of the water quality within that locality, with respect to number of points and their location.

Department of Human Services assessment process

The Department of Human Services is responsible for the assessment of water sampling localities and water sampling points. The Department has developed criteria with which to assess information on proposed water sampling localities and water sampling points submitted by each water supplier. The criteria for assessment of water sampling localities and water sampling points and the information to be submitted to the Department are detailed within this document.

The specification of water sampling localities and water sampling points takes place in consultation with each water supplier. A water supplier is initially required to submit information on their water sampling localities and water sampling points. The information will then be reviewed against the Department's established criteria, and a visit may be arranged with a water supplier to discuss the proposed water sampling localities and water sampling points, seek further information and/or discuss changes required.

Finalised water sampling localities will be catalogued and the information, such as name, boundaries, etc, recorded against the water supplier in the Departments database. Finalised water sampling points will be catalogued and the information, such as address, tap type, etc, recorded against the relevant water sampling locality in the database. The finalised water sampling localities and water sampling points will be formally confirmed with the water supplier by letter.

The information for each specified water sampling locality will be prepared and published in the Government Gazette. Water sampling localities may be published in a number of forms. The preference is for a visual representation in the form of a map, which would show the boundaries and relevant layers to identify the area of the water sampling locality. Alternatively a table of geographic coordinates or a text description of the boundary may be used to describe a water sampling locality.

A public register of specified water sampling points with reference to the water supplier and the water sampling locality will be established.

Criteria for water sampling localities

Purpose

The purpose of specifying water sampling localities is to allow for monitoring and reporting against the water quality standards listed in Schedule 2 of the Safe Drinking Water Regulations 2005.

Application

Regulation 4 of the Safe Drinking Water Regulations 2005 only applies to an area supplied with drinking water by a water supplier. It does not apply to regulated water supplies. Nor does it apply to water not intended for drinking that could not be confused for drinking water which falls outside the scope of the *Safe Drinking Water Act 2003*.

Definition

A water sampling locality will be defined by the minimum criteria outlined below.

Minimum criteria

There is a minimum set of criteria that define a water sampling locality. For the purposes of the *Safe Drinking Water Regulations* a water sampling locality is:

- An area supplied with drinking water.

Regulation 4 does not apply to regulated water, nor any other non-drinking water or water which is not covered by the *Safe Drinking Water Act 2003*, for example irrigation waters.
- A discrete area of similar water quality.

Generally water entering the area is supplied from a common source, such as a tank or where no tank exists a treatment plant and/or disinfection point that supplies directly into a reticulation system, and the nature of the hydraulic arrangement of the pipe work and valves defines the extent of supply to the area.

For small water supply systems this may be the whole supply whilst for larger systems it may be discrete hydraulic areas supplied from a single service reservoir or treatment plant, whose extent is often defined by the location of shut valves in the reticulation pipe-work. Alternately areas may be geographically discrete.
- Inclusive of all consumers supplied with drinking water of similar water quality.

The boundary must include all consumers receiving drinking water of similar water quality, including those customers on supply by agreement contracts that receive water intended for drinking.
- Able to be described by its boundaries.

The boundaries of the water sampling locality need to be able to be defined. This may be either by geographic coordinates or through reference in text to a road, railway line, municipal boundary,

physical feature of terrain, waterway or property boundary. Alternately, a map drawn from the geographic coordinates would give an acceptable description of the boundaries of a water sampling locality.

There may be areas within a water supply system that are supplied by two or more tanks or treatment processes (common sources). As a result the boundary between supply sources may move from time to time depending on the supply arrangement. In this instance the area may need to be described as one water sampling locality because it is not possible to define an accurate fixed boundary.

Additional information

There are additional factors that need to be considered when specifying an area supplied by drinking water as a water sampling locality. These factors may impact on drinking water quality in an area and consequently the designation of a discrete area of water supply as a water sampling locality.

Each of the following will need to be considered on a case-by-case basis when specifying water sampling localities within a drinking water supply system.

- The nature and design of the distribution system used by the water supplier to supply drinking water. Some examples include:
 - The location of service reservoirs, tanks, trunk or distribution mains and reticulation infrastructure.
 - The extensiveness of the water supply distribution system with particular consideration given to significant distances and water travel time.
 - Pressure zones, where these may correlate with areas of discrete or varying water quality.

- The source(s) of the drinking water supplied to the water sampling locality.

The source(s) of drinking water to a water sampling locality may be a catchment, groundwater, treatment plant, service reservoir, or tank or a combination of one or more of these.

The number of sources and treatment processes must be considered, because in isolation or combination they may alter the water quality throughout the water supply system. In particular, with treatment and/or disinfection, the water quality is changed through a deliberate intervention via the addition of chemicals, or other treatment processes, for the removal of microbiological, chemical, physical or biological hazards.

In a single locality where additional treatment or disinfection processes are permanently applied within the locality, changing the water quality supplied to parts of the locality, there is a need to split the water sampling locality according to the discrete areas of water quality.

As a rule, passing water through a pump or pressure-reducing valve (PRV) is not considered to significantly change its quality. Therefore one water sampling locality may contain several pressure zones.

- Any other matter that the Secretary considers relevant. Some examples of what may be considered include:
 - Water district boundaries, licence areas and areas of operation, including maps that depict these areas.

- Historical information and data, including areas of historically poor water quality.
- Rationale or justification provided by the water supplier as to why a specific area should be considered a single water sampling locality.
- Population of the water sampling locality.

Criteria for water sampling points

Purpose

The purpose of specifying water sampling points is to ensure that samples of drinking water collected within a water sampling locality in accordance with the Safe Drinking Water Regulations 2005 are representative of the drinking water supplied within the water sampling locality. Specifically, the number of water sampling points and their distribution across the water sampling locality must accurately characterise the quality of drinking water supplied in the entire area.

Application

Regulation 5 of the Safe Drinking Water Regulations 2005 applies only to a tap connected to a water supplier's drinking water supply system within a specified water sampling locality.

Definition

A water sampling point is a tap connected to the water supplier's system of supply, within a water sampling locality, that has been specified for the purpose of sampling drinking water in accordance with the Safe Drinking Water Regulations 2005. The water sampling point must provide water that is representative of the drinking water supplied to consumers. A water sampling point does not include a tap located at a service reservoir, elevated tank, water treatment plant or raw water source.

Minimum Criteria

The following criteria are to be used for selecting a site (tap) as a water sampling point and for determining the number and distribution of water sampling points within a water sampling locality.

For any one site a water sampling point must fulfil the following criteria:

- That it is a tap and that it is connected to a water supplier's drinking water supply system.
The tap may be either one that has been designed solely for the purpose of collecting water samples, such as click-in fitting or pre-meter, or another tap, such as front garden tap, accessible and free from external fittings.
- It must provide water that is representative of drinking water supplied to consumers within the water sampling locality.
Ideally the tap should be located at or near the point at which the drinking water is supplied to consumers, such as near the front meter.
- It is accessible at all reasonable times for sampling purposes.
Properties or taps where access is not guaranteed should be avoided, such as dogs on the premises, locked gates and behind fences. In some circumstances a tap may not be accessible at

a certain time of year, such as in alpine areas. In this case, inclusion of internal taps and additional water sampling points may be an acceptable alternative.

- The tap must have a unique identifier, that is it can be described by its physical location, by address including property number or name, street name, street type, suburb and postcode, and map reference points such as GPS, Vic Roads or Melways.

Unique identification of a water sampling point, such as address details will be required for inclusion on the public register. Some fields will be mandatory, such as property number or name, street name and suburb, whilst others supportive such as postcode and map reference points.

- The water sampling point must be permanent, or fixed, and must not move around.

The tap must be located at a fixed address, not just on a street, for example 12 Smith Street Sometown, rather than just Smith Street Sometown with an unspecified number, and it should be available for use for a reasonably long period of time – minimum of 6 months.

Whilst it is not a regulatory requirement, it is recommended that water sampling points be selected in consultation with the property owner. It is the responsibility of the water supplier to gain the consent for tap use and inform the property owner that the location of the water sampling point will be placed on a public register. It is also the responsibility of the water supplier to ensure that the specified water sampling point, and no other tap at the address, is being used for sampling by their staff or staff of a third party contractor.

Additional information

When selecting any one site as a water sampling point, consideration needs to be given to the number and distribution of all water sampling points within a water sampling locality.

- Number of taps
 - The number of taps chosen must be enough to be representative of water quality within the whole of the supply (see Appendix 1 for further guidance);
 - The number must not exceed a maximum of 100 active sites;¹
 - There should be enough so that they can be rotated over a two month period without revisit; and
 - Consideration should be given to the size of the water supply system, including the population of consumers served.
- Distribution of taps within a water sampling locality

Taps should be spread throughout a water sampling locality considering the following:

 - Points near the extremities of the distribution system including dead-end mains;
 - Distribution of taps such that they are representative of all the drinking water throughout the water sampling locality;
 - Near predicted boundaries between areas supplied by different source waters;
 - In areas supplied with a blend of different source waters;

¹ From time to time it may be necessary to retire taps. This means that it may be possible to exceed 100 taps as a historic total number, provided that at any one time there are no more than 100 active taps.

- Weighted to population density;
- Key customers, such as large industrial or commercial connections; and
- Include sites near vulnerable populations such as schools, hospitals and aged-care facilities.

Unique identification (codes)

The Department is required to store and retrieve compliance data supplied to it by water suppliers as monthly summaries. To assist in this process a database is being developed which will allow for a unique identifier (code) to be entered for each water sampling locality and water sampling point specified under regulations 4 and 5.

Historically a number of coding systems have existed throughout the State for the identification of both water sampling localities and water sampling points. For consistency in reporting the Department believes that the use of the water sampling locality name and the water sampling point address (street number/premises, street name, street type and town/suburb) provides unique identification for each water supplier to use in monitoring and reporting compliance with the standards. At this time the Department will employ an internal coding system. The water supplier may use any coding or numbering system for their internal purposes.

Privacy

Sub Regulation 5(3) of the Safe Drinking Water Regulations 2005 requires the Department to maintain a public register of all water sampling points. It is intended that the register will be structured as follows:

Water Business, for example "Pristine Water"

Water Sampling Locality, for example "Sometown"

Water Sampling Points, for example "8 Main Street, Sometown North"

The Department has reviewed whether disclosure of this information on a public register may constitute a breach of the *Information Privacy Act* 2000 and has received advice that the collection and compiling of this information is lawful and is not in breach of this Act. It is also felt that the provision of street address and suburb information would not constitute a breach of the Information Privacy Act, as there is no personal identifying information attached to this descriptor.

Each water supplier should review the disclosure of this information against its internal privacy policy and seek advice as to whether it needs to consult or inform consumers accordingly. Department of Human Services will manage the information in a manner consistent with Departmental privacy policy.

Amendments

Once water sampling localities and water sampling points have been approved and specified by the Secretary to the Department of Human Services, changes will only be able to be made through a formal approval process.

A procedure for alterations to specified water sampling localities and water sampling points is being developed and will be in place by early 2006. Its purpose will be to formalise requests from water suppliers for changes to specified water sampling localities and water sampling points and the approval of such changes by the Department. The procedure will establish a context for requesting changes, such as additions, deletions and amendments, define who may initiate and approve changes, and the documentation for request and approval.

Details and form of submission

In the first instance water suppliers are asked to submit details of their proposed water sampling localities and water sampling points. To assist in this process tables have been prepared and, where available, fields populated to expedite the provision of information.

A template of each table has been attached and each table is accompanied with an explanation of each field (see Appendix 2. Templates) An electronic version of these tables containing populated fields will be made available to each water supplier.

Table 1: Water sampling localities

This table is to record all the proposed water sampling localities for your business and some broad details. In completing the table each water supplier is asked to consider:

- How many localities are there within the water supply systems?
- Are the boundaries defined and how have they been described? Is there a map of each individual water sampling locality - this may be a hard copy or a PDF generated from a GIS database?
- The forms of treatment and/or disinfection applied prior to water entering or to water within the water sampling locality.

Table 2: Water sampling localities rationale

Table 2 is provided for each water supplier to provide a rationale behind deciding that each proposed water sampling locality boundary describes an area of discrete water quality. In completing the rationale each water supplier is asked to consider if the proposed locality is a discrete hydraulic area, the sources of water supplied to the locality, the presence of internal tanks and disinfection points, and the geographical area covered by the water sampling locality.

If further space is required the rationale may be submitted on a separate page.

Table 3: Water sampling points

This table is to outline the proposed water sampling points for each water sampling locality and their details. It is asked that a separate table be completed for each water sampling locality nominated. Water suppliers should:

- Consider the current water sampling points for each water sampling locality.
- Ensure that there are enough water sampling points within each water sampling locality, as a rule there should be enough points for two months of sampling without the need to return to same sampling point, and that they are adequately distributed across the water sampling locality.
- Ensure each point is described by an address, including property number or name, street name, suburb or town, and if possible, also by an available map reference point such as GPS, Melways or Vic Roads.
- Ensure that each water sampling point proposed is appropriate to be used as a water sampling point.

Maps

Where available, each water supplier is asked to submit a map of each water sampling locality, outlining the boundaries. In addition, and if available, each water supplier is asked to provide separate maps indicating the location of the water sampling points within the water sampling locality, to illustrate the spread of points.

Additional information for submission

A water supplier may submit any further information on their water supplies that they believe will assist the specification of water sampling localities and water sampling points, such as a schematic of the water supply and details of additional treatment.

Submission contacts details

All information must be submitted to either Janine Ryan or Brian Labza at:

Drinking Water Regulation
Department of Human Services
GPO Box 4057
MELBOURNE VIC 3001

Your completed tables should, where possible, be submitted to the Department through electronic mail in an Excel format. Information must be submitted to david.sheehan@dhs.vic.gov.au or brian.labza@dhs.vic.gov.au.

All other queries can be directed to David Sheehan on 9096 5647 or Brian Labza on 9096 5088.

Appendix 1. Calculation of number of water sampling points

Table A1 details the minimum number of water sampling points for a given water sampling locality population.

Small Water Sampling Localities

For water sampling localities with a population less than or equal to 500, such as small towns, villages, recreational area and reserves, the Department will assess each water sampling locality for the number and spread of taps required. A reduced number of water sampling points may be negotiated.

Alpine Resort Areas

In the case of alpine resort areas where access to external taps is restricted and residences are not open all year round, the number and spread of taps will need to be assessed on a case-by-case basis. One possibility is to have a core set of water sampling points available all year round and an additional set that are used in winter when the population increases significantly.

Table A1. Minimum number of water sampling points

Population of water sampling locality	Minimum number of Water Sampling Points
≤500	4 - 9
501 - 5000	9
5001 - 10000	11
10001 - 15000	13
15001 - 20000	15
20001 - 25000	17
25001 - 30000	19
30001 - 35000	21
35001 - 40000	23
40001 - 45000	25
45001 - 50000	27
50001 - 55000	29
55001 - 60000	31
60001 - 65000	33
65001 - 70000	35
70001 - 75000	37
75001 - 80000	39
80001 - 85000	41
85001 - 90000	43
90001 - 95000	45
95001 - 100000	47
100001 - 110000	54
110001 - 120000	56
120001 - 130000	58
130001 - 140000	60
140001 - 150000	62
150001 - 160000	64
160001 - 170000	66
170001 - 180000	68
180001 - 190000	70
190001 - 200000	72
200001 - 210000	74
210001 - 220000	76
220001 - 230000	78
230001 - 240000	80
240001 - 250000	82
>250001	82 - 100

Appendix 2. Templates

Table 1. Water sampling localities

Table 2. Water sampling localities rationale

Table 3. Water sampling points