



Aquatic Facilities Microbiological Water Sampling Guideline

This guideline has been developed by the Department of Health Western Australia (WA Health) to assist authorised officers collect water samples as required by section 21 of the Health (Aquatic Facilities) Regulations 2007 (Regulations). It outlines the method for preparing, collecting and transporting microbiological water samples from aquatic facility water bodies.

Preparing for Water Sampling

Choosing a Sample Location

The aim water sampling is to obtain a representative sample of the water to which patrons are exposed. The sample location should be from the main water body as close as practicable to a skimmer or wet-deck gutter (or in the case of a spray park, at an accessible water feature as far from where water enters the site as possible).

Allocating Site Codes

Each aquatic facility sample point requires a unique site code before samples are collected and submitted for analysis. Further Information on how to allocate and using Site Codes is available to authorised officers and sampling agencies from the WA Health, Environmental Health Directorate.

Preparing Sample Bottles

250mL Sample bottles (e.g. Figure 1), foam coolers and ice-bricks should be available from the laboratory for collection or ordering.

Sample bottles contain a small quantity of sodium thiosulfate which neutralises oxidant residual present in the sample (this is the moisture you may see inside the bottle). Bottles exceeding their expiry date must be discarded.

The Regulations require collection of 2 water samples (1 x chilled for bacteria; 1 x ambient for amoeba) from each water body of each aquatic facility.

Prior to collecting samples, sample bottle labels should be filled out using a waterproof pen with the following information:

- Sender number (if required)
- Site code
- Point of collection and Source (to align with the description, provide on chain of custody form)
- Date and Time of collection
- Transport temperature (e.g. 4°C or Ambient)

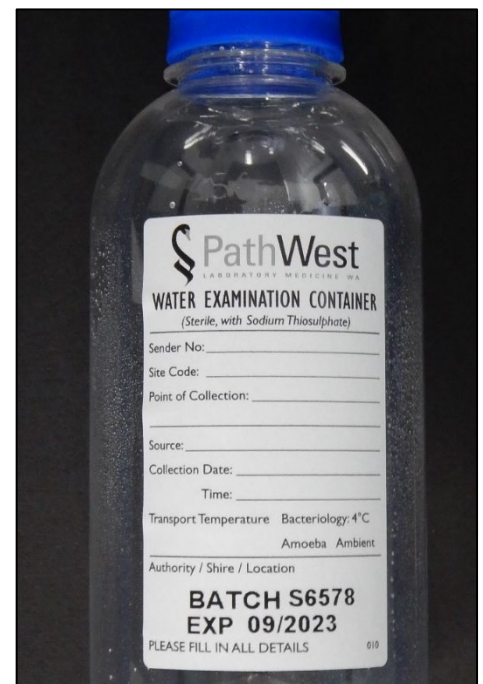


Figure 1: PathWest Sampling Bottle

Preparing Chain of Custody / Request Forms

Chain of custody / request forms (e.g. Figure 2) are supplied by the analytical laboratory. These forms must be completed, signed and submitted along with water samples to the analytical laboratory.

It is recommended that the person collecting the sample take a photocopy or photograph of completed request form for their records before submitting form and samples to the laboratory.

The chain of custody / request form should be labelled with:

- Sender's company name, address and contact details (e.g Shire/Local Government or Company name)
- Contact name and signature of person collecting the sample
- Date sampled
- Sender's purchase order number (if required)
- Sample details:
 - Tick the type of sample/s that apply (e.g. pool, spa, hydro, float)
 - Site Code
 - Description (sample point and source)
 - Time of collection
 - Treatment information (water temperature, treatment type & concentration (ppm), pH)
 - Tick whether bacteria/ambient or both submitted





 GOVERNMENT OF WESTERN AUSTRALIA	 PathWest LABORATORY MEDICINE WA	Waters Examination Laboratory Environmental Microbiological Unit Second Floor, J Block Hospital Avenue, Nedlands, WA 6009 Tel: (08) 6457 2583 Email: waters.pathwest@health.wa.gov.au ABN: 83 469 340 804	WATERS EXAMINATION LABORATORY REQUEST FORM	 W	 NATA <small>TECHNICAL</small> Corporate Accreditation No. 2392 NATA Accreditation No. 2851							
Company Name: <input style="width: 90%;" type="text"/> Address: <input style="width: 90%;" type="text"/> Contact Name: <input style="width: 45%;" type="text"/> Phone Number: <input style="width: 45%;" type="text"/> Contact Email: <input style="width: 90%;" type="text"/> Date Sampled: <input style="width: 45%;" type="text"/> Signed: <input style="width: 45%;" type="text"/> Purchase Order Number: <input style="width: 90%;" type="text"/>		<input type="checkbox"/> Drinking Water (source to Consumer) <input type="checkbox"/> Reverse Osmosis Water (RO Water) <input type="checkbox"/> Bottled Water, Ice <input type="checkbox"/> Pools <input type="checkbox"/> Spas <input type="checkbox"/> Hydros <input type="checkbox"/> Float Tanks <input type="checkbox"/> Natural Waters (Fresh) <input type="checkbox"/> Natural Waters (Marine) <input type="checkbox"/> Sewage / Wastewater Recycled water <input type="checkbox"/> Air conditioning / Cooling Towers <input type="checkbox"/> Other (specify) <input style="width: 100%;" type="text"/>		Additional Sample Comments: Specify Tests Required:								
LABORATORY USE ONLY	SAMPLE DETAILS				TREATMENT				SAMPLE SUBMITTED (please tick)		LABORATORY USE ONLY	
Laboratory Number	Site Code	Description	Time Sampled	Temp (°C)	Type (Cl, Br, etc.)	ppm	pH	Bacteria (chilled)	Amoebae (ambient)	Bacteria set up by / Date:	Amoebae set up by / Date:	
								<input type="checkbox"/>	<input type="checkbox"/>			
								<input type="checkbox"/>	<input type="checkbox"/>			
								<input type="checkbox"/>	<input type="checkbox"/>			
								<input type="checkbox"/>	<input type="checkbox"/>			
								<input type="checkbox"/>	<input type="checkbox"/>			
								<input type="checkbox"/>	<input type="checkbox"/>			
Samples Received By: <input style="width: 80%;" type="text"/>		Temperature ("chilled"): <input style="width: 80%;" type="text"/>		Laboratory Comments: <input style="width: 90%;" type="text"/>				Report Type: <input style="width: 80%;" type="text"/>		Emailed: <input style="width: 80%;" type="text"/>		
Receival Date: <input style="width: 80%;" type="text"/>		Temperature (amoeba): <input style="width: 80%;" type="text"/>						Authorised By: <input style="width: 80%;" type="text"/>		Date: <input style="width: 80%;" type="text"/>		
<small>PathWest Microbiology MWFANRQU Version 1.9 Issue Date: 30 June 2021 Authorised by R Woodward</small>												

Figure 2: PathWest Chain of Custody Form

Sample Collection

Important Points!

It is essential to use aseptic sampling technique to avoid contaminating the water sample.

Always:

- ✓ Keep the lid on the bottle until you are ready to collect the sample
- ✓ Collect microbiological samples before collecting other samples.
- ✓ Label the bottle before sampling.
- ✓ Discard damaged or contaminated bottles. If in doubt throw it out and collect a new sample in a new bottle.

Do Not:

- ✗ Touch / contaminate the inside of the bottle or rim of the lid.
- ✗ Put the bottle lid on the ground while sampling.
- ✗ Rinse the bottle.
- ✗ Transport aquatic facility water samples with other samples, e.g effluent or drinking water.

Sample Collection Procedure

1. Wash hands prior to sampling.
2. Move to the perimeter of the water body, near to where a skimmer box, scum-gutter, or wet-deck is located (or for a water spray pad, at an accessible water feature as far from where water enters the pad as possible).
3. If wearing a long sleeve shirt, roll sleeves of shirt up past elbow.
4. Hold the sterile bottle in one hand near the base, then carefully remove and hold the screw cap with the other hand. Be careful not to touch the inside of the screw-cap when sampling.
5. *Bacteriological Water Samples*
 - Squat down at the edge of the water body.
 - Plunge the bottle neck downwards approximately 30cm below the water surface.
 - Maintaining 30cm depth, turn the bottle neck slightly upwards (to allow bottle to fill up) whilst moving the bottle in a continuous, horizontal motion, parallel with the edge of the pool until almost full.
 - Remove bottle from the water and tip off excess to leave a small air space 1-2cm from the rim of the bottle. (this is to facilitate mixing of the sample by the laboratory).
 - Carefully replace the screw-cap immediately and tightly.
6. *Amoebae Water Samples*

Repeat the process detailed for bacteriological water samples, except scrape the rim of the bottle against the interior water body wall, when moving the bottle horizontally through the water body.

Site Observation Details

In addition to details recorded on the request form, other site details and environmental factors are useful when interpreting microbiological results and may be recorded. For example:

- Total alkalinity, combined chlorine, calcium hardness & total dissolved solids, cyanuric acid.
- Approximate number of bathers in the water
- Water clarity/turbidity (visual clarity in the water i.e. leaves, debris, algae)
- Weather conditions (temperature, wind, rainfall)
- Presence of animals (birds/ducks)
- Other (e.g. issues with water treatment equipment, log-book records or incident response).

Sample Transportation

Temperature

Bacteriological

Aquatic facility water samples requiring bacteriological analysis must be immediately stored and transported in an insulated container (esky) containing enough ice-bricks to maintain a temperature below 8°C (ideally between 1°C to 4°C). Samples must **not** be frozen.

Chilling of bacteriological, water samples is required to prevent the multiplication of bacteria which may result in false bacterial counts.

Amoebae

Aquatic facility water samples requiring amoeba analysis must be transported in an insulated container at ambient (not-chilled) temperature.

The samples must be kept at ambient temperature as chilling the sample will kill any viable amoebae.

Note: Float tanks require 2 x chilled samples as all float tanks tests are bacterial.

Time

Water samples should be transported to the laboratory for processing as soon as possible (ideally within 6 hours of collection) to minimise changes that may occur within the sample.

Microbiological samples need to be processed no later than 24 hours after collection.

Further Information

For further information please contact;

swimminpools@health.wa.gov.au

Environmental Health Directorate
Department of Health Western Australia
PO Box 8172,
Perth Business Centre WA 6849

Telephone: 08 9222 2000

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