



# Aquatics Facilities Guidelines

## 5. Plant Operation

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The Aquatic Facility Guidelines have been developed for use by aquatic managers. They provide detailed information covering the management and operation of an aquatic facility.

This document is a companion document to the Facility Management Manual, which can be found on the Sport NZ website and the [Recreation Aotearoa website](#).

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# 1. Introduction

Aquatic facilities require efficient and well-maintained mechanical plant operations to ensure that facilities are safe and operate in accordance with relevant standards and legislative requirements. This includes the operation of pool water circulation, filtration systems, heating and ventilation systems. Regular monitoring and maintenance are required to ensure operating plant and equipment does not malfunction and optimum levels and efficiencies are maintained.

To ensure good water quality is achieved and maintained, the operation of pool plant equipment must be carried out by trained and qualified water treatment operators.

## 2. Water quality

The New Zealand Standard that governs water quality in swimming pools is NZS 5826:2010 – Pool Water Quality. It provides guidance for pool owners and managers to check water quality measurements and maintain water quality to safeguard the health of pool users.

Central to this Standard is risk assessment which provides an opportunity to improve the effective management of pool water quality for all pool operators and users. Pool water risk management plans can also be used to operate the pools' water quality outside the requirements of NZS 5826:2010.

NZS 5826:2010 covers methods of water treatment and safe handling of swimming pool chemicals for fresh water and seawater swimming, spa pools and geothermal pools. It also requires all public pools to have 'risk management plans' in place to ensure that swimming pools are operated as safely as possible. Compliance with NZS 5826:2010 is a Poolsafe® requirement and it is cited in the Public Health Bill 2007.

The objective of this Standard is to ensure the water in swimming pools is maintained to safe chemical and microbiological levels to:

- » protect swimmers from unsafe organisms that cause disease.
- » safeguard swimmers against the discomfort of chemical burns to skin and mucous membranes.
- » minimise damage to the pool and associated equipment.
- » have a pool which appears clean and sparkling.

### 2.1 Water contamination

Swimming pool water can quickly become contaminated by swimmers who bring dirt, sweat, body fats, faecal matter, oral and nasal discharges into the water, as well as hair and lint from swimming togs. Windblown debris and material from the pool surrounds can also enter the pool and add to the pollution.

### 2.2 Measures to keep water clean

To ensure the water remains chemically and microbiologically safe, regular testing is required, and the frequency of these tests is specified in NZS 5826:2010. Each facility needs:

- » An efficient mechanical filter system and chemical treatment of the water to maintain pool water in a safe and hygienic condition for swimmers.
- » To be aware of instantaneous bather load, or the maximum number of people using the pool at any one time. On a hot day, loss of disinfecting chlorine through high ultraviolet levels and overuse by swimmers can lead to poor performance of the filters and chemical treatment. The resulting degradation of the water can lead to a high health risk for swimmers.

## 2.3 Key information in the NZ Standard

The following information is described in detail in the Pool Water Quality Standard.

### Pool water quality characteristics

The desired values for correct pH, alkalinity, calcium hardness, Free Available Chlorine, total chlorine levels and other features which make up the required pool water quality characteristics which include the chemical requirements, desired values or operating ranges and frequency of testing.

### Microbiological monitoring

A requirement of the Standard is for monthly microbiological monitoring to guard against harmful organisms in the water. This testing cannot be carried out by facility staff and requires pool water samples to be sent away to laboratories specialising in water treatment. The local public health office can provide the location of the nearest testing laboratory. Refer to the **Introduction chapter** for contact details.

### Incident procedures

Advice is provided in the Standard appendix on the procedures to be followed in the event of a faecal discharge or a diarrhoea incident, which has the potential to introduce Giardia or Cryptosporidium to pool water.

### Chemical handling

Guidance is provided on the safe handling and storage of potentially unstable and explosive pool chemicals.

Another implication of the Standard is that school pools are classified as “public pools” For public pools the operation of the water treatment system is the responsibility of people holding NZQA unit standards in swimming pool water quality. The management of pool water quality is required to be under continuous

technical supervision with the qualified people readily accessible when the pool is operating.

## 2.4 Pool Risk Management Plan

A Pool Risk Management Plan (PRMP) is a systematic assessment of every aspect of providing safe and aesthetically acceptable pool water. It identifies the events that can cause the water quality to deteriorate and provides appropriate management practices to reduce the likelihood of adverse events and mitigate their effects if they do occur. It covers aspects of pool water quality treatment, contamination and event management. The PRMP must be reviewed annually and updated where necessary.

Key areas covered by the pool risk management plan are:

<b>General monitoring</b>	Covers the risks with the collection of samples of pool water and their analysis.
<b>Staff training</b>	The ability of staff to make correct decisions regarding the production and maintenance of good pool water.
<b>Media filtration without flocculation</b>	Events that may alter the effectiveness of media filtration and their impact.
<b>Media filtration with flocculation</b>	Events that may alter the effectiveness of media filtration using chemical enhancements (flocculation) and their impact.
<b>Pre-coat filtration</b>	Events that may occur during the pre-coat filtration process that could affect the effectiveness of the process and their impact.
<b>Chlorine disinfection</b>	Assesses events that may result in the chlorine disinfection process failing, and the impact of the failure.
<b>Chlorine dioxide disinfection</b>	Assesses events that may result in the chlorine dioxide disinfection process failing, and the impact of the failure.
<b>Ozone disinfection</b>	Assesses events that may result in the ozone disinfection process failing, and the impact of the failure.

<b>General monitoring</b>	<b>Covers the risks with the collection of samples of pool water and their analysis.</b>
Disinfection by ultraviolet irradiation	Assesses events that may result in the ultraviolet irradiation process failing, and the impact of the failure.
pH adjustment	Events that may occur during the pH adjustment process and their impact.
Pump operation	Assess the risks from recirculation and chemical dose pumps not working properly.
Alternative treatment solutions	Identifies the risks involved with using alternative treatment, not identified elsewhere in the Standard.

## 2.5 Microbiological and chemical water tests

Four different tests are carried out monthly to test for microorganisms.

<b>Standard plate count (HPC)</b>	Also known as heterotrophic plate count or HPC. This is a measure of the live bacteria in a pool water sample and may indicate the possible presence of other microorganisms. It gives a general idea of how well the chlorination system is working. High counts of bacteria may be indicative of a problem.
<b>Faecal Coliform count</b>	This is an indicator test, which looks at the presence of bacteria of faecal origin. If faecal coliforms are present, it indicates that there is a possibility that other bacteria associated with the gut such as Salmonella or Campylobacter may also be present. These bacteria can cause sickness.
<b>Staphylococcus aureus count</b>	This bacterium can cause skin irritations especially in wounds, cuts or abrasions and can cause sickness if ingested or swallowed. It can be found in infected wounds or in the nasal cavity when someone has a cold.
<b>Pseudomonas aeruginosa count</b>	This bacterium can be associated with eye, ear and skin infections and is often associated with spa pools.

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*Staphylococcus aureus* and *Pseudomonas aeruginosa* can be relatively resistant to chlorine, and they therefore account for a large percentage of swimming pool and spa associated illness.

## 3. Water treatment procedures

The recommended water treatment procedures for compliance with NZS 5826:2010 are outlined below.

### 3.1 Water testing

The pool water in each body of water should be tested regularly through the day for chlorine levels, FAC, CAC and pH, with details recorded for each test. An independent laboratory may also test for these and bacteria levels on a regular basis.

Facilities are required to keep good water records including information on water quality test results, corrective actions, and chemical adjustments or additions. Records should also be kept of bather loads and user incidents that may affect water quality such as faecal accidents.

#### Seasonal pools

- » Water testing should be undertaken thoroughly before the pool is opened for use and while the pool is being used.
- » It is not expected that a water-testing regime will be continued when seasonal pools are closed or while the facility is not in use.

#### Public pools

Each body of water:

- » should be tested prior to opening every day, including spas
- » every 3 hours for main pools during opening hours
- » every 2 hours for spa pools during opening hours
- » for low usage facilities, testing should be undertaken on a regular basis during opening hours to maintain compliance with the standard.

Microbiological testing should be undertaken:

- » at the beginning of the season
- » monthly thereafter
- » when the pool does not comply with chemical parameters over a period of half a day
- » more frequently if there is a problem. If you are using an online auto-dosing system, you can reduce the water testing frequency to no fewer than two samples a day for FAC and pH testing.

## 3.2 Frequency of chemical testing procedures for swimming pools

As per NZS 5826:2010 Table 2.

Test	Frequency
pH	Prior to daily use then every three hours.
Alkalinity	Weekly.
Calcium hardness	Monthly.
Free available chlorine (FAC)	Prior to daily use then every three hours.
Total available chlorine	Daily.
Cyanuric acid	At the beginning of season, then fortnightly.
Cyanuric acid if chlorinated cyanurates used	At the beginning of season, then fortnightly.
Chlorine if saline pool water is electrolysed	At the beginning of season, then weekly.
Total dissolved solids	At the beginning of season, then weekly.

### 3.3 Frequency of chemical testing procedures for spa pools

As per NZS 5826:2010 Table 3.

Test	Frequency
pH	Prior to daily use then every two hours.
Alkalinity	After filling, then weekly.
Calcium hardness	After filling, then weekly.
Free available chlorine (FAC)	Prior to daily use then every two hours.
Total chlorine (Bromine)	Daily.
Total dissolved solids (TDS)	Daily.

### 3.4 Microbiological water quality criteria

As per NZS 5826:2010 Table 4.

Test	Level
Standard plate count	Less than 200 per mL.
Faecal coliforms or Escherichia coli (E.Coli)	Less than 1 per 100mL.
Staphylococcus aureus	Less than 100 per 100mL.
Pseudomonas aeruginosa	Less than 10 per 100mL.

### 3.5 Cryptosporidium and other notifiable diseases

When a Cryptosporidium outbreak occurs in the community or cases are associated with a pool, the local Public Health Service will notify Aquatic Facility Managers of an outbreak.

During an outbreak you may be asked by the Public Health Service to test your water. If you are not in an outbreak area, do not test your pool for Cryptosporidium unless you are advised to by your Public Health Service.

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Samples are often taken by a separate organisation therefore care should be taken to ensure the Aquatic Facility Manager and laboratory are satisfied that correct sampling procedure is followed.

Aquatic Facility Managers are advised that the internationally recognised test for *Cryptosporidium* is APHA 9711B. The sampling procedure should be provided by the laboratory carrying out the test. It is accepted that 380 litres (100 US gallons) is the standard minimum quantity to be collected at a preferable flow rate of 4 litres per minute.

It is important that pool managers ensure sampling equipment is cleaned thoroughly before each test, as specified by the accredited laboratory and or according to APHA 9711B test method.

If your test is positive, the Ministry of Health criteria for closing and reopening Aquatic Facilities, needs to be followed in consultation with Public Health Service and Environmental Health Officers.

If your pool tested negative, you may remain open, unless advised otherwise.

## **Recommended testing laboratories**

The Ministry of Health has advised that they currently recognise the following laboratories for testing *Cryptosporidium*.

Massey University  
(Institute of Molecular Biosciences)  
Jim Learmonth  
Telephone: (06) 350 4016

Environmental Science and Research Limited  
(ESR - Communicable Disease Centre)  
Els Maas or Tania Wiltshire  
Telephone: (04) 237 0149 or (04) 237 0149

Watercare  
Lynette Ronerg  
Telephone: (09) 275 5119 or (09) 275 5119

Greater Wellington Regional Council  
Helen Sillars  
Telephone: (04) 567 7561 or (04) 567 7561

During an outbreak you should actively promote the key messages recommended by the Ministry of Health to your patrons. Pool reopening will be recommended in consultation with Aquatic Facility Managers, Public Health Service and Environmental Health Officers. If there is still an active outbreak in the area, you

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may wish to reduce your risk of reinfection and avoid spreading infection to other pools by:

- » limiting access to 'at-risk' groups, predominantly those under 8 years
- » limited opening options, only programmed sessions, no public recreational access
- » postponing any events, such as regional or national events
- » opening only when recommended by the Public Health Service.

## Criteria for closing a pool

A pool may be recommended for closure by the Public Health Service if:

### **A. There is an outbreak in the area, and:**

- » the pool tests positive, or
- » the pool is linked to the outbreak, or
- » nearby pools test positive or are linked to the outbreak (this is to avoid the spread of infection).

Note: Other factors such as the adequacy of treatment and filtration systems will be considered.

### **B. A positive test result is obtained, but there is no outbreak:**

- » A low positive test result is less than 10 oocysts per 100 litres; a high result is greater than 10 oocysts per 100 litres.
- » Any decision for closure will be in consultation with Aquatic Facility Management, Environmental Health Officers and the Public Health Service, and must be considered on a case-by case basis.

## Criteria for reopening a pool

- » Pool decontaminated according to accepted methods and one clear test when the original positive test was less than 10 oocysts /100 litres.
- » Pool decontaminated according to accepted methods and two clear tests are taken at least 24 hours apart when the original positive test was 10 oocysts or more/100 litres and/or cases were associated with the pool.
- » Public Health Service recommendations are being followed regarding behaviour and personal hygiene while there is an outbreak in the community.

## Key Personal Hygiene Messages

These messages should be promoted at all times. During an outbreak they should be particularly emphasised and there may be additional advice, for example, immunocompromised people avoiding swimming.

- » Do not go swimming if you have had diarrhoea within the last two weeks.
- » Do not allow your children to go swimming if they have had diarrhoea within the last two weeks.
- » Always encourage personal hygiene, namely washing hands after going to the toilet, after changing a nappy, before handling food, before entering the pool.
- » Ensure children swim in tight fitting togs, not nappies.
- » Make customers aware that they need to report any faecal accidents immediately.
- » Encourage customers to shower, using soap around the anal area, before entering the pool. Ensure parents and caregivers take responsibility for children.

## Public Awareness

Appropriate and accurate public awareness is necessary with respect to the *Cryptosporidium* issue, or for that matter any public health issue which affects pools.

**Please note:** A negative result does not indicate your pool is "crypto clear". Do not place public notices indicating this as it is both misleading to the customers and inaccurate. A negative result is not 100% conclusive and only represents a single point in time.

If there is an outbreak in the community which is not related to a pool (for example, a crèche) and you are notified by the Public Health Service, you may wish to notify your customers of this. It is recommended you use the Key Personal Hygiene Messages above.

If you choose to restrict access by the 'at-risk' group, please clearly inform customers that there is an outbreak in the community and to avoid the spread of the disease the pool has taken a proactive stance to close the children's pool to protect everyone's health. Contact schools, crèches etc. in your area and explain the closure.

*Cryptosporidium* is a disease which is brought into the pool by the community. Your role as an Aquatic Facility Manager, in an outbreak, is to reduce the risk of

spreading the disease. This will be done in consultation with the Public Health Service and the Environmental Health Officer.

Some groups in the community need to be very careful to ensure that they do not become infected (e.g. people who are HIV positive, people on medications which affect their immune systems). If there is concern about *Cryptosporidium* in an area or in a pool these people should seek medical advice before swimming.

## 3.6 Chemical water quality criteria for swimming pools and spas

As per NZS 5826:2010 Table 1.

Characteristic	Value			Comments
	Lowest	Highest	Desirable	
pH	7.2	8.0	7.4 – 7.6	<p><b>Too low:</b> Rapid dissipation of disinfectant, plaster and concrete etching, eye discomfort, corrosion of metals, vinyl liner damage.</p> <p><b>Too high:</b> Low chlorine efficacy, scale formation, cloudy water, eye discomfort. Under proven management systems, pH levels may be above the highest values given.</p>
<b>Alkalinity</b> (a) Gas chlorinated pools and pools using trichloroisocyanuric acid	100.0 mg/L	200.0 mg/L	120.0 – 150.0 mg/L	<p>For both (a) and (b)</p> <p><b>Too low:</b> pH bounce, corrosion tendency.</p> <p><b>Too high:</b> Cloudy water, increased scaling potential, pH tends to be too high.</p>
(b) Pools with other forms of chlorine	50.0 mg/L	200.0 mg/L	60.0 – 120.0 mg/L	

Characteristic	Value			Comments
	Lowest	Highest	Desirable	
<b>Calcium hardness</b>	40.0 mg/L	300.0 mg/L	Refer to SI (Saturation Index)	<b>Too low:</b> Etching and corrosion. <b>Too high:</b> Scaling and cloudy water.
<b>Free available chlorine (FAC)</b> (a) Swimming pool Chlorine alone Chlorine + other	1.5 mg/L 0.5 mg/L	7.0 mg/L 5.0 mg/L	2.5 – 5.0 mg/L 1.0 – 2.5 mg/L	For both swimming pools and spa pools, a heavy pool bathing load may require operation at or near maximum levels.
(b) Spa pools and hot tubs Chlorine alone Chlorine + other	2.0 mg/L 1.5 mg/L	7.0 mg/L 7.0 mg/L	3.0 – 5.0 mg/L 3.0 – 5.0 mg/L	See the risk management plan for FAC management. Chlorine + Other means Chlorine plus Ozone, UV or ClO <sub>2</sub>
<b>Combined available chlorine (CAC)</b>	Not detectable	1.5 mg/L	Less than 0.5 mg/L	High combined chlorine results in reduced chemical efficiency. Take remedial action to establish break point chlorination. High combined chlorine residuals give rise to a sharp chlorinous odour and eye irritations.
<b>Total bromine: Swimming pools</b>	4.0 mg/L	10.0 mg/L	4.0 – 6.0 mg/L	If using chlorine test kit multiply the reading by 2.2 for total bromine.
<b>Total bromine: Spas</b>	4.0 mg/L	10.0 mg/L	5.0 – 7.0 mg/L	

Characteristic	Value			Comments
	Lowest	Highest	Desirable	
<b>Cyanuric acid</b>	25.0 mg/L	100.0 mg/L	30.0 – 60.0 mg/L	<p>Too low: Chlorine residual rapidly destroyed by sunlight.</p> <p>Too high: reduces the chlorine’s efficacy.</p>
<b>Total dissolved solids (TDS)</b>		Less than 2000.0 mg/L above make-up water just for spa pools.	Less than 1000.0 mg/L above make-up water just for swimming pools	<p>TDS indicates a build-up of impurities which should be controlled by partial drain/refill with fresh water, typically at a rate of 30 L/ person/day.</p> <p>These TDS limits do not apply to salt chlorinated pools. Follow the manufacturer’s instructions.</p>

## 3.7 Technical advisors on water quality and plant operations

<p><b>Environmental Laboratory Services – Eurofins</b></p> <p>Eurofins Christchurch 43 Detroit Drive Rolleston Christchurch</p> <p>Tel: 03 343 5227 Fax: 03 343 5226 <a href="mailto:info@eurofins.co.nz">info@eurofins.co.nz</a> <a href="http://www.eurofins.co.nz">www.eurofins.co.nz</a></p>	<p><b>Environmental Laboratory Services – Eurofins</b></p> <p>Eurofins Wellington 85 Port Road, Seaview Lower Hutt Wellington</p> <p>Tel: (04) 576-5016 0800 576 5016 Fax: (04) 576 5017 <a href="mailto:info@eurofins.co.nz">info@eurofins.co.nz</a> <a href="http://www.eurofins.co.nz">www.eurofins.co.nz</a></p>
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<p><b>Water Care Laboratories</b></p> <p>52 Aintree Avenue Māngere Auckland 2022</p> <p>Phone: 0800 522 365 <a href="https://www.watercarelabs.co.nz/our-lab/about-us/">https://www.watercarelabs.co.nz/our-lab/about-us/</a></p>	<p><b>Waikato Institute For Leadership and Sports Studies</b></p> <p><a href="http://www.wilss.ac.nz/swimming-pool-compliance/">www.wilss.ac.nz/swimming-pool-compliance/</a></p>

## Further information

### Templates:

- » [7.1 Water testing procedures](#)
- » [7.2 Water testing instructions](#)
- » [7.3 Water test range and solutions](#)
- » [7.4 Water test sheet – main pool](#)
- » [7.5 Water test sheet – spa pool](#)

## 4. Managing filtration and circulation systems

### 4.1 Operations

There is a range of filtration systems used by aquatic facilities and it is important that routine checking, and specialised maintenance are carried out to ensure reliable system operation, economic performance and maximum component performance.

The general requirements for plant management are:

- » operational checking
- » preventative maintenance
- » callouts for faults
- » plant room and equipment presentation.

The periods between programmed preventative maintenance should be set based on the equipment operating under average conditions. Where components are not duplicated to allow for maintenance work to be undertaken, the maintenance programme will need to be planned to coincide with the facility maintenance programme and facility closure.

Operational checking of a non-specialised nature and some operational recording can be undertaken by pool staff. These checks can be valuable aids in detecting abnormal operations leading to more significant fault conditions. These checks can be carried out on a weekly and monthly programme.

All routine operational checking, maintenance and replacement or major overhaul of plant components should be recorded. Callouts should also be recorded and reviewed as they can assist in establishing where additional routine maintenance may be required or where a different type of component is necessary.

When equipment maintenance is being carried out, normal safety procedures must be followed. It is essential that all plant and equipment is rendered inoperative and kept safe while being worked on. All electrically operated equipment must be isolated so it cannot be operated from a remote switch.

Service personnel need to be instructed on the facility's health and safety policies and need to have access to equipment manuals and records. Appropriate service personnel should only work on equipment that they are qualified to work on.

## 5. Plant Operation

All staff that conduct plant duties on a daily or week basis should receive appropriate training as part of their induction and ongoing training. It is important that any instructions and NOPS for staff relating to plant operations are easily understood by all staff members and communicated in ways that meet staff needs. See how Gore District Council developed more [visual instructions](#) to support their staff. Video descriptions are also in development.

Figure 1: Example of a pool facility plant room



## Further information

### Templates:

- » [7.6 Daily plant checks](#)
- » [7.7 Plant room checklist](#)
- » [7.8 Weekly operational check schedule – boiler plant](#)
- » [7.9 Monthly operational check schedule – boiler plant](#)
- » [7.10 Planning chart for preventative maintenance](#)
- » [7.11 Fault callout report](#)

## 4.2 Handling chemicals

Pool chemicals should be considered hazardous. Prior to chemical use and storage, staff should refer to the relevant safety data sheets (SDS) and use systems that comply with the Health and Safety at Work Act 2015(HSWA).

Failure to follow correct chemical handling procedures could result in serious injury or death. WorkSafe requirements for handling hazardous substances and manufacturer's chemical handling and storage requirements should be followed. SDS are available for all chemicals and should be obtained from the supplier or manufacturer of the product. SDS should be displayed next to the chemical they refer to. A full inventory of all chemicals held on site must be produced and must include maximum quantity held and location.

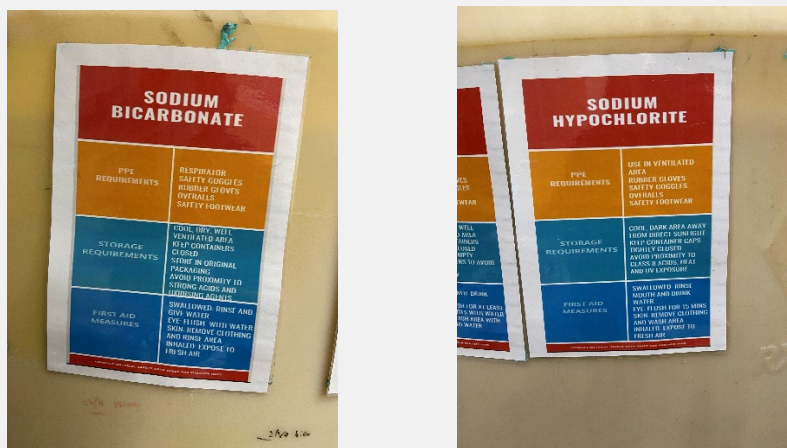
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In general terms, chemical storage areas should be cool, dry, well-ventilated and secure, and there should be provision for separation of chemicals.

Chlorine-based compounds are the most volatile compounds used for swimming pool treatment and special care should be taken with them. They should not be mixed with organic compounds or other products, in particular, cyanuric acid-based products should not be stored with chlorine-based products.

Instructions on emergency procedures, safe storage and handling procedures should be prominently displayed in the area where chemicals are handled and mixed. These must be easy to read and cater to different communication needs and styles.

Figure 2: Examples of signage for emergency procedures and safe storage and handling procedures



Full personal protective equipment (PPE) must be provided and worn when handling chemicals. It is important that all staff who use this equipment are fully aware of the correct way of wearing PPE, and it must correctly fit all staff. One size does not fit all! All staff who are expected to handle chemicals must receive full training on induction and at regular intervals during their period of employment.

Follow the manufacturers or supplier's instructions when disposing of chemicals.

## Further information

[WorkSafe Hazardous Substances Toolbox](#)

**Template:** [7.12 Emergency spill procedure flowchart](#)

## 4.3 Managing filters

There is a range of machinery, equipment and systems used in the aquatic industry, which are unique to each facility. The plant room should have detailed procedures and instructions for the operation of equipment in the facility, and these should be referred to at all times.

Having clean filters is essential to the effectiveness and operation of the water filtration system and pumping equipment. The performance of filters can be monitored through pressure or vacuum gauge readings or by visual observations of media. Staff need to monitor the levels of water quality and pressure gauge readings regularly and refer to their NOP for guidance on when replacement of filtration media used is necessary.

Depending on the system used, some facilities may decide to include regular filtration cleaning/backwashing as part of their weekly routine for smaller pools such as spa and toddler pools.

Cleaning filters will generally involve either backwashing or use of chemicals that will require disposal.

## 4.4 Waste disposal

All pools generate waste that needs disposal, whether it is wastewater from pools or chemicals used in filtration systems. It is important to be aware of the local bylaws surrounding waste disposal.

When dumping pool water into the local wastewater system, it is good practice to reduce the chemical levels in the water prior to discharge, ensure a slow release of water at times when the wastewater system is not in high use, so the system does not become overloaded.

Under no circumstance should pool wastewater be discharged into a storm water system.

## 4.5 Sustainable water practices

Sustainable water practices in public swimming pools focus on reducing water consumption and minimising environmental impact. This can be achieved through various strategies like updating equipment, backwashes, filters changes, water saving devices in showers and changing rooms, rainwater harvesting, greywater recycling, evaporation reduction, and improved water management systems. Regular maintenance and inspections are vital to identify leaks and other problems early. Implementing these practices not only conserves water but also lowers operating costs and promotes environmental responsibility.

## 5. Heating and ventilation

The essential requirements for heating and ventilating a covered pool are:

- » elimination of odours from pool chemicals and humans
- » prevention of condensation
- » maintaining the air temperature to be acceptable to the average swimmer.

For a covered pool, the prevention of condensation created by evaporation from the pool surface is vital. Evaporation is at its minimum when the hall air temperature is close to the pool temperature. Equally important is the ability of the ventilation plant to replace the air at a sufficient rate to prevent moisture and odours. Air replacement and heating is a significant use of energy and therefore the ventilation system needs to be maintained to ensure optimum efficiency. Heating and ventilation plant installations that include systems to recover heat from exhausted air are recommended.

Effective mechanical ventilation of the boiler plant room area is also essential to prevent contamination of electrical equipment and erosion of boiler tubes by chlorine-laden air from the pool hall.

### 5.1 Use of electrical equipment

Care when using electrical equipment is always important, but even more so in an aquatic facility due to the presence of water. All portable electrical equipment, including leads, should be tested and tagged annually by a registered service technician or electrician. Whenever used, portable equipment should always be plugged into a residual-current device (RCD) electrical outlet, or a portable RCD should be used.

Common electrical equipment at an aquatic facility includes inflatable blowers, pool vacuum cleaners, poolside scrubbers, water blasters and wet vacuums. When using cords poolside, staff need to be aware of hazards in terms of cords being close to water, especially puddles on the ground, and cords need to be positioned so as not to cause a hazard for customers and staff walking past.

All contractors working on the site should have all their electrical equipment tested and tagged, and they must be shown which electrical outlets have RCD on them as part of their health and safety induction to the facility.

## 6. Cleaning

Clean and tidy public areas give positive messages to customers and can encourage them to help keep the facility tidy. Cleaning all public and staff areas is also essential for health and hygiene. During the day changing rooms and toilets should be regularly checked and cleaned where required, in addition to the daily cleaning as specified in the NOP. Staff need to be careful of customers while cleaning during the day. The area should be closed while cleaning, and safety signs displayed where appropriate. Use of noisy cleaning equipment in changing rooms when being used by customers should be avoided as this distracts from an enjoyable customer experience.

Poolside should be cleaned daily. Attention should be paid to cleaning the tiles surrounding the pool, and the scum-lines in the pool.

It is also important that plant rooms are kept tidy and cleaned regularly. The effective use of a pool facility is dependent on reliable plant operation. Clean, uncluttered, freshly painted plantrooms will normally reflect the attention paid to regular preventative maintenance and effective plant operation. A cluttered and messy plant room can also become a hazardous environment for those who work in them.

Staff should ensure they use the correct chemicals for cleaning each area of the pool. Staff should be trained in the handling and use of all cleaning chemicals. Where possible environmentally friendly cleaning products should be used for the health and safety of staff and customers.

### Further information

#### Templates:

- » [7.13 Cleaning public facilities procedures](#)
- » [7.14 Public changing rooms checklist](#)
- » [7.15 Staff changing rooms checklist](#)

# 7. Templates

[7.1 Water testing procedures](#)

[7.2 Water testing instructions](#)

[7.3 Water test range and solutions](#)

[7.4 Water test sheets – main pool](#)

[7.5 Water test sheets – spa pool](#)

[7.6 Daily plant checks](#)

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[7.10 Planning chart for preventative maintenance](#)

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[7.14 Public changing rooms checklist](#)

[7.15 Staff changing rooms checklist](#)

## 7.1 Water testing procedures

### Minimum frequency of chemical testing procedures for swimming pools

As per NZS 5826:2010 Table 2.

Test	Frequency
pH	Prior to daily use then every three hours
Alkalinity	Weekly
Calcium hardness	Monthly
Free available chlorine	Prior to daily use then every three hours
Total available chlorine	Daily
Cyanuric acid	At the beginning of season, then fortnightly
Cyanuric acid if chlorinated cyanurates used	At the beginning of season, then fortnightly
Chlorine if saline pool water is electrolysed	At the beginning of season, then weekly
Total dissolved solids	At the beginning of season, then weekly

## Minimum frequency of chemical testing procedures for spa pools

As per NZS 5826:2010 Table 3.

Test	Frequency
pH	Prior to daily use then every two hours
Alkalinity	After filling, then weekly
Calcium hardness	After filling, then weekly
Free available chlorine (FAC)	Prior to daily use then every two hours
Total chlorine (Bromine)	Daily
Total dissolved solids (TDS)	Daily

## Microbiological water quality criteria

As per NZS 5826:2010 Table 4.

Test	Level
Standard plate count	Less than 200 per mL
Faecal coliforms or Escherichia coli (E.Coli)	Less than 1 per 100mL
Staphylococcus aureus	Less than 100 per 100mL
Pseudomonas aeruginosa	Less than 10 per 100mL

## Chemical water quality criteria for swimming pools and spas

As per NZS 5826:2010 Table 1.

Characteristic	Value			Comments
	Lowest	Highest	Desirable	
<b>pH</b>	7.2	8.0	7.4 – 7.6	<p><b>Too low:</b> Rapid dissipation of disinfectant, plaster and concrete etching, eye discomfort, corrosion of metals, vinyl liner damage.</p> <p><b>Too high:</b> Low chlorine efficacy, scale formation, cloudy water, eye discomfort. Under proven management systems, pH levels may be above the highest values given.</p>
<p><b>Alkalinity</b>                      (a) Gas chlorinated pools and pools using trichloroisocyanuric acid</p>	100.0 mg/L	200.0 mg/L	120.0 – 150.0 mg/L	<p>For both (a) and (b)</p> <p><b>Too low:</b> pH bounce, corrosion tendency.</p> <p><b>Too high:</b> Cloudy water, increased scaling potential, pH tends to be too high.</p>
(b) Pools with other forms of chlorine	50.0 mg/L	200.0 mg/L	60.0 – 120.0 mg/L	
<b>Calcium hardness</b>	40.0 mg/L	300.0 mg/L	Refer to SI (Saturation Index)	<p><b>Too low:</b> Etching and corrosion.</p> <p><b>Too high:</b> Scaling and cloudy water.</p>

Characteristic	Value			Comments
	Lowest	Highest	Desirable	
<b>Free available chlorine (FAC)</b> (a) Swimming pool Chlorine alone Chlorine + other	 1.5 mg/L 0.5 mg/L	 7.0 mg/L 5.0 mg/L	 2.5 – 5.0 mg/L 1.0 – 2.5 mg/L	For both swimming pools and spa pools, a heavy pool bathing load may require operation at or near maximum levels.
(b) Spa pools and hot tubs Chlorine alone Chlorine + other	 2.0 mg/L 1.5 mg/L	 7.0 mg/L 7.0 mg/L	 3.0 – 5.0 mg/L 3.0 – 5.0 mg/L	See the risk management plan for FAC management. Chlorine + Other means Chlorine plus Ozone, UV or ClO <sub>2</sub>
<b>Combined available chlorine (CAC)</b>	Not detectable	1.5 mg/L	Less than 0.5 mg/L	High combined chlorine results in reduced chemical efficiency. Take remedial action to establish break point chlorination. High combined chlorine residuals give rise to a sharp chlorinous odour and eye irritations.
<b>Total bromine: Swimming pools</b>	4.0 mg/L	10.0 mg/L	4.0 – 6.0 mg/L	If using chlorine test kit multiply the reading by 2.2 for total bromine.
<b>Total bromine: Spas</b>	4.0 mg/L	10.0 mg/L	5.0 – 7.0 mg/L	
<b>Cyanuric acid</b>	25.0 mg/L	100.0 mg/L	30.0 – 60.0 mg/L	Too low: Chlorine residual rapidly destroyed by sunlight. Too high: reduces the chlorine's efficacy.

Characteristic	Value			Comments
	Lowest	Highest	Desirable	
<b>Total dissolved solids (TDS)</b>		Less than 2000.0 mg/L above make-up water just for spa pools.	Less than 1000.0 mg/L above make-up water just for swimming pools	<p>TDS indicates a build-up of impurities which should be controlled by partial drain/refill with fresh water, typically at a rate of 30 L/ person/day.</p> <p>These TDS limits do not apply to salt chlorinated pools. Follow the manufacturer’s instructions.</p>

## 7.2 Water testing instructions

Figure 3: Example of water testing procedures

Procedures Manual Poolside Operations

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### 7.5 Water testing procedure

**To calibrate the photometer.**

- Switch the unit on using the ON/OFF switch.
- Select Cl (chlorine test) using the MODE key.
- Fill a clean vial with the water sample up to the 10ml mark, replace the cap and dry the outside of the vial using a paper towel. Place the vial into the sample chamber with the triangle on the vial aligned with the triangle on the sample chamber.
- Press the ZERO/TEST key.
- The display will show 0.0.0, this means that the photometer has calibrated itself.

**(a) To test for F.A.C (free available chlorine)**

- Remove the vial from the sample chamber.
- Without handling the tablet, add one DPD No.1 tablet to the vial. Using a clean stirring rod, crush the tablet and stir to dissolve. Replace the cap and dry the outside of the vial using a paper towel. Place the vial into the sample chamber with the triangle on the vial aligned with the triangle on the sample chamber.
- Press the ZERO/TEST key.
- The result is shown on the display in mg/l free chlorine.


**(b) To test for T.A.C (total available chlorine)**

- Remove the vial from the sample chamber.
- Without handling the tablet, add one DPD No.3 tablet to the vial. Using a clean stirring rod, crush the tablet and stir to dissolve. Replace the cap and dry the outside of the vial using a paper towel.
- **Wait for a colour reaction time of two minutes.**
- Place the vial into the sample chamber with the triangle on the vial aligned with the triangle on the sample chamber.
- Press the ZERO/TEST key.
- The result is shown on the display in mg/l total chlorine.

**(c) To test for C.A.C (combined available chlorine)**

- Combined available chlorine = Total available chlorine – Free available chlorine.

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WELLINGTON REGIONAL AQUATIC CENTRE

## 7.3 Water test range and solutions

Figure 4: Example of water test range and solutions procedure

Procedures Manual	Poolside Operations
<h3>7.9 Water Test Range and Solutions</h3>	
<p><b>FAC</b></p> <p><b>Main Pool: 2.0ppm minimum</b> Main pool is below 2.0ppm but above 1.5ppm leave to recover but re test in 30mins. If the result is under 1ppm ring the operations team leader and check the hypo tank.</p> <p><b>Main Pool: 5ppm maximum</b> A reading above 5ppm is a warning sign of other issues inform the operations team leader.</p> <p><b>Spa Pool: 2ppm minimum</b> If the pool is below 2ppm then manually dose 500mls (15%) and re test in a further 20mins, inform the operations team leader if this problem continues as the spa pool may need to be closed.</p> <p><b>Spa Pool: 8ppm maximum</b> If the spa pool reaches 8ppm plus then closes the spa to public, turn off the chlorine pump and turn on the bubbles until the level goes down to 7ppm then re open.</p> <p><b>Toddlers Pool: 2ppm minimum</b> Toddler's pool is below 2.0ppm leave to recover but re test in 30mins. If the result is under 1ppm or doesn't recovery close the pool to public and ring the operations team leader. Manually refill from Main pool re check in 20mins.</p> <p><b>Toddlers Pool: 5ppm maximum</b> The Toddlers pool can not go higher and will need to be shut to public, dump water. Inform the operations team leader.</p> <p><b>Learners Pool: 2ppm minimum</b> If the learners pool is below 2.0ppm but above 1.5ppm manually dose with 1 litre (15%) re check in 30mins. If the result is under 1ppm or doesn't recovery close the pool to public and ring the operations team leader.</p> <p><b>Learners Pool: 5ppm maximum</b> The learners pool can to a maximum of 8ppm before it needs to be shut to public, but once the learners pool goes over 6ppm turn off the chlorine pump, dump water. Inform Operations team leader.</p> <p><b>CAC's</b></p> <p>If any of the pools reach a CAC reading of 2ppm you need to inform the Operations Team Leader and follow the guide below.</p> <p>Main Pool – dump water for 5mins Learners Pool – dump water 10mins inform Operations Team Leader, we may need to close Toddlers Pool – dump totally and refill Spa Pool – Backwash, Totally dump if it gets to 2.5ppm</p> <p><b>Alkalinity</b></p> <p>Below level 60; add bi carbonate to increase – 5kg for every 15 increase</p>	
<p>SECTION 7.9 Water Test Range and Solutions 05/02/2008 PAGE 1</p>	

## 7.4 Water test sheets – main pool

Figure 5: Example of a water testing sheet for a main pool

		complex: MAC			pool;			week beginning:				set points cl:		pH:		volume (m³):		turn over time (hr):					
Day	time	°C	cl			testkit results			readings		testkit results		filtration				water	weather	pool	sample point		sign	
			stroke	FAC	TAC	CAC	cl	pH	pH	ALK	in	out	diff	b/w	calcium	TDS	condition	load	line	c.o.p	staff	snr	
Saturday	7am																						
	10am																						
	1pm																						
	4pm																						
	7pm																						
Sunday	7am																						
	10am																						
	1pm																						
	4pm																						
	7pm																						
Monday	5am																						
	8am																						
	11am																						
	2pm																						
	5pm																						
	8pm																						
Tuesday	5am																						
	8am																						
	11am																						
	2pm																						
	5pm																						
	8pm																						
VALUE			1.5-7.0			<1.5			7.2-8.0		50-200				40-300		<2000		clear				
KEY: C.O.P = Centre of Pool																							

## 7.5 Water test sheets – spa pool

Figure 6: Example of a water testing sheet for a spa pool

		complex: MAC		pool:SPA			week beginning:		set points cl: pH:7.8		volume (m³): 10		turn over time (hr): 0.15						U.V Readings				sign	
day	time	Spa	Sauna	cl	testkit results			readings		testkit results		filtration		water	weather	pool	sample point		Dose	P/L	RT	Intensity	STAFF	SNR
		Temp	stroke	FAC	TAC	CAC	cl	pH	pH	ALK	in	out	diff	b/w	calcium	TDS	condition	load						
Wednesday	5am																							
	7am																							
	9am																							
	11am																							
	1pm																							
	3pm																							
	5pm																							
Thursday	5am																							
	7am																							
	9am																							
	11am																							
	1pm																							
	3pm																							
	5pm																							
Friday	5am																							
	7am																							
	9am																							
	11am																							
	1pm																							
	3pm																							
	5pm																							
Rechecks																								

KEY: C.O.P = Centre of Pool

## 7.6 Daily plant checks

Record details of abnormal readings in the comments field and inform the Team Leader/Manager.

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

	Y/N						Comment
<b>Upstairs plant room</b>							
All red lights on							
Any fault lights on heat pump board							
Private Spa Plant Room							
Circulation pump going							
Heater on and going (record temp)							
Any leaks							
Tabs total in chlorinator? (max. 1 tab)							
<b>Poolside spa plant room</b>							
Circulation pump going							
Heater on and going							
Any leaks							
Is heat pump downstairs going (record temp)							
Chlorine computer on							
<b>Main plant room</b>							
Chlorine computer on							
Check CO <sup>2</sup> bottles. (pH control) – any empty?							
Is salt level above red line – clean out scum from top of salt tank, tidy up rubbish, 10 bags?							
Circulation pump going							
Is UV system going (record reading)							
Pressure gauges normal – below backwash mark							
Boiler No.1 going							

	Y/N						Comment
Boiler No.2 going							
Any fault lights on							
Boiler ventilation going							
Any leaks							
Compressor between 45 – 85psi (record)							

Learner's plant room (tunnel)							
Slurry tank above half full, hose up DE spills							
Cathodic protection light on?							
Is UV system going (record reading)							
Any red lights on control panel							
Water level reading							
Water level in the filter tank at the correct level							
Main pool temperature							
Learners pool temperature							

<b>Comments</b>
Any comments or unusual sounds or readings please record below.
<b>Morning checks</b>
<b>Afternoon checks</b>
<b>Evening checks</b>

## 7.7 Plant room checklist

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Check	Quantity	Faults	Description
Automatic controller dosing lines			
Pre-coat mixing tank			
Sodium bicarbonate tank and pumps			
Sodium bisulphate tanks and pump			
Boiler room e.g. fault lights			
Chlorine dosing lines, e.g. splits			
CO2 dosing lines upper and lower levels			
Heat exchangers, e.g. fault lights			
Blowers – splash			
Blowers – spa			
Pool filters			
Pool pumps and motors			
Lint pots			
Control panel (downstairs)			
Balance tanks (leaks and faults)			

## Recreation Aotearoa Te Whai Oranga

Check	Quantity	Faults	Description
Gloves - light duty			
Gloves - heavy duty			
Jackets			
Pants			
Respirators			
Breathing apparatus			
Gumboots			
Hard hats			
Hearing protection			

## 7.8 Weekly operational check schedule - boiler plant

Weekly									
Date:	Checking Done By:								
Check	Normal	Actual				Abnormal conditions			
		wk 1	wk 2	wk 3	wk 4	wk 1	wk 2	wk 3	wk 4
Check boiler flow temperature Gauge P.	78 – 90oC								
Check primary circuit water pressure Gauge Q.	At red Marker								
Check admin circuit return Temp Gauge K.	78 – 90oC								
Leakage or abnormal noise from boilers.									
Both circulating pumps running?									

## 7.9 Monthly operational check schedule - boiler plant

Monthly		
Date:	Checking Done By:	
Check	Reading	Abnormal Conditions
Isolate burner at control switch and reinstate. Witness normal start up.		
Previous gas meter reading.		
Current gas meter reading.		
No of days since previous reading.		
Total gas used since last reading (m3).		
Average gas used per day since last reading (m3).		
Clean up around boiler plant room. Check metal work for corrosion.		

## 7.10 Planning chart for preventative maintenance

**Key:**

P = Selected Pool Staff

S = Supplier’s representative

T = Specialised Trades

Preventative maintenance checklist (specialised)		Hours if run continuously (24hr/day)								
		24	168	720	2,016	4,032	8,760	17,520	26,280	43,800
		Frequency of checks								
Equipment Item	No. Units	D	W	M	3M	6M	Y	2Y	3Y	5Y
Gas train and burners	2						T		T	
Axial flow fans	4					T	T		T	
Unit heaters (change rooms)	3						T			T
Powered roof ventilators	2						T		T	
Ductwork system									T	T
Glandless circulating pumps	3						T		T	

**Recreation Aotearoa** Te Whai Oranga

Preventative maintenance checklist (specialised)		Hours if run continuously (24hr/day)								
		24	168	720	2,016	4,032	8,760	17,520	26,280	43,800
		Frequency of checks								
Base plate circulating pumps	3					T	T			T
Heating coils	2								T	T
Heating circuit pipe work							T		T	T
Air filter housings	2						T			T
Control panels	4						T		T	
Electric motors	1						T		T	
Hot water boiler & flue	1					T	T			
Automatic control systems							S			
Submersible pumps	6					T	T			S
Heat exchange	2					T	T		T	

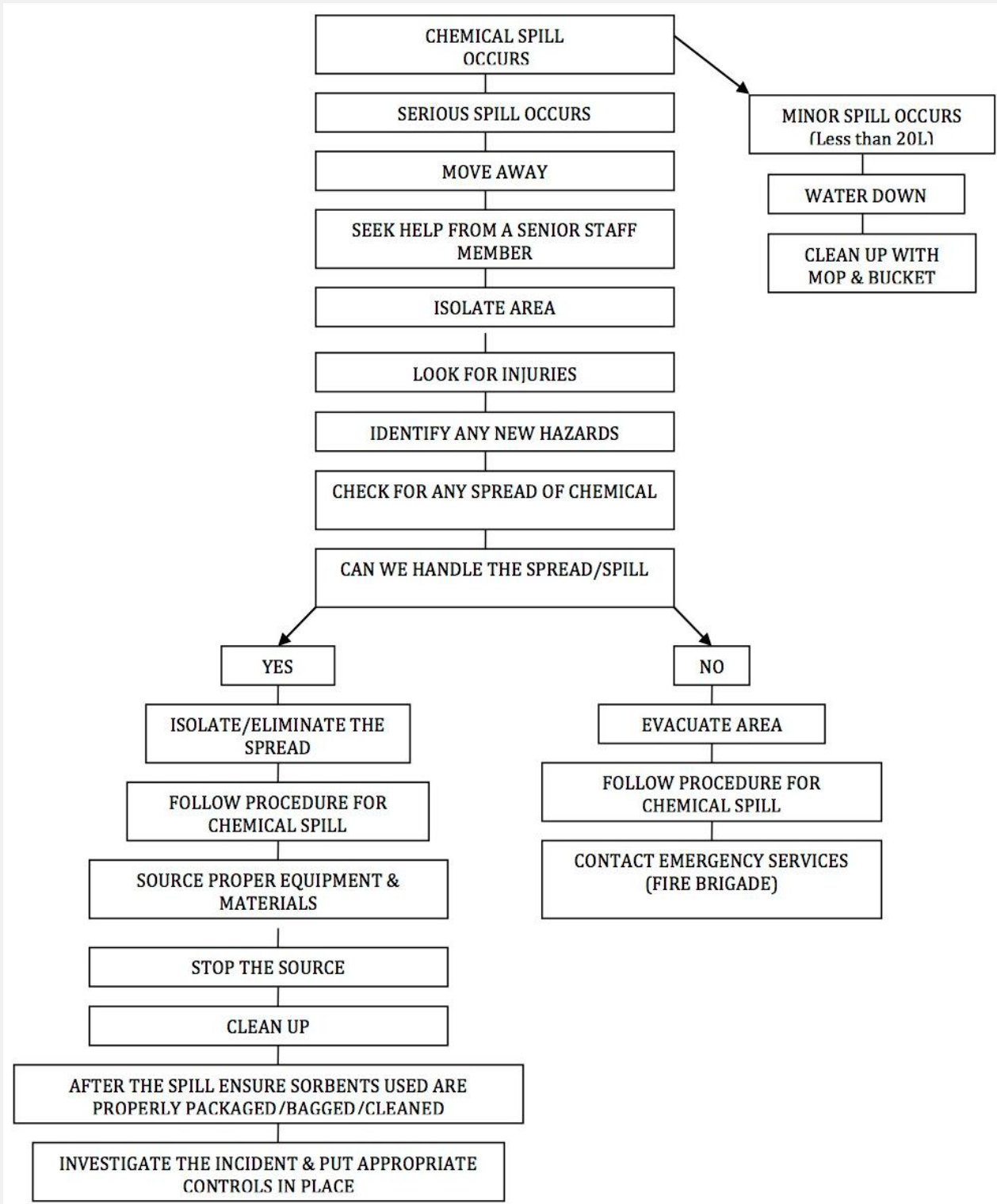
**5. Plant Operation**

Preventative maintenance checklist (specialised)		Hours if run continuously (24hr/day)								
		24	168	720	2,016	4,032	8,760	17,520	26,280	43,800
		Frequency of checks								
Operational checking (non-specialised) by pool management staff										
Equipment Item	No. Units	D	W	M	3M	6M	Y	2Y	3Y	5Y
Boiler plant		P	P	P						
Pool heat exchanger		P	P	P						
Pool hall ventilation plant		P	P	P						
Changing room ventilation plant		P	P	P						
Control panels M1, M2		P	P	P						

## 7.11 Fault callout report

Report sheet number:		Time of call out:	
Fault notified by:			
Date:		Time:	
Fault symptoms: (give details)			
Urgent:	<input type="checkbox"/>	Non-urgent:	<input type="checkbox"/>
Serviceman's specialisation:			
Serviceman's name:			
Time of arrival:		Time of departure:	
Elapsed time:		Date:	
Description of fault found: (by serviceman)			
Action taken:			
Special comments:			
Serviceman's signature:			
Acknowledgement of report by owners' representative:			
Signed:		Date:	
Cost:	\$		

## 7.12 Emergency spill procedure flowchart



## 7.13 Cleaning public facilities procedures

### Poolside

#### Equipment needed

- » Disinfectant, scrubbing brush, gloves.

#### What and how to clean

- » Hose down to wet the floor.
- » Scrub the floor using disinfectant.
- » Poolside equipment, e.g. hoist, aquatic wheelchairs, seating.
- » Hose down all disinfectant and rubbish into the drain.
- » Remove all excess rubbish that cannot be hosed down the drain.
- » Do not lift the drain covers to hose rubbish in. This will only block the drain.
- » Lock-up shifts should only need a hose down and pick up of any rubbish.

### Toilets

#### Equipment

- » Scrubbing brush, toilet brush, disinfectant, squeegee, cloth, gloves.

#### What to clean

- » Toilet bowls, floors, showers, walls, seats, sinks, drains, mirrors, urinals.

#### How to clean the toilets

- » **Toilet bowl:** scrub the bowl out with disinfectant and brush then wipe the seat with disinfectant and cloth.
- » **Floors:** pick up all the rubbish and hose the floor. Disinfect the floor and scrub with scrubbing brush. Squeegee to nearest drain.
- » **Showers:** scrub the floors and the walls with disinfectant and scrubbing brush and hose to drains.
- » **Walls:** check the walls for tagging and any marks that shouldn't be there and remove.
- » **Seats:** check for tagging and remove with graffiti remover and a cloth.

## 5. Plant Operation

- » **Sinks:** wipe down with disinfectant and cloth.
- » **Mirrors:** wipe down with glass cleaner and paper towels.
- » **Ceilings:** remove all toilet paper from ceilings.
- » **Drains:** clear rubbish and hair from drains.
- » **Urinals:** (men's only): scrub down with disinfectant and hose down.

## Family/Accessible changing rooms

### Equipment

- » Scrubbing brush, disinfectant, squeegee, cloth, and gloves.

### What to clean

- » Floors, showers, walls, seats, sinks, drains, mirrors, urinals.

### How to clean

- » **Floors:** pick up all the rubbish and hose the floor. Disinfect the floor and scrub with scrubbing brush. Squeegee to nearest drain.
- » **Showers:** scrub the floors and the walls with disinfectant and scrubbing brush and hose to drains.
- » **Walls:** check the walls for tagging and any marks that shouldn't be there and remove.
- » **Seats:** check for tagging and remove with graffiti remover and a cloth.
- » **Hoist/Change table:** wipe down with disinfectant and cloth.
- » **Handrails:** wipe down with disinfectant and cloth.
- » **Sinks:** wipe down with disinfectant and cloth.
- » **Ceilings:** remove all toilet paper from ceilings and walls (if any).
- » **Drains:** Clear rubbish and hair from drains.

## Sauna

### Equipment

- » Scrubbing brush, Clean All, stainless steel cleaner, scrubbing pad, gloves, chlorine, face mask.

## **What to clean**

- » Shower walls and floor and cubby hole floors, drinking fountain, sauna floor, and sauna seats.
- » Pick up rubbish.

## **How to clean**

- » Using scrubbing pad and stainless-steel cleaner, clean around drinking fountain removing all body fat and /or dirt.
- » Using scrubbing brush and Clean All, scrub down all shower walls and floors removing scum and dirt from walls and floors. This includes cubby hole floors. Hose into drains and pick up excess rubbish.
- » Pick up rubbish under sauna seats and around the back of sauna machine. Scrape off gum.
- » Remove seats and scrub with disinfectant and hot water. This is to remove the body fat.
- » Wearing protective gear, spray chlorine where black mould is present, under seating, on the walls and behind sauna machine.
- » Let chlorine set for 5 minutes then wash off making sure to give it a good hose.
- » With the framework you would need more hot water. Pour hot water over the framework to remove the fat and scrub down framework with scrubbing brush.
- » Last thing to do is the floors. Scrub with disinfectant.

## **Windows**

### **Equipment**

- » Spray bottle of window cleaner, squeegee and dry cloth.

### **What and how to clean**

- » Clean all windows inside and out.
- » Spray window and wipe off with squeegee.
- » Use dry cloth to wipe residue.

## Chrome surfaces

### Equipment

- » Stainless steel powder, damp cloth, dry cloth and gloves.

### What and how to clean

- » Clean all chrome surfaces, fences, handrails, poles etc.
- » Using the damp cloth, apply stainless steel powder to the chrome surface and wipe clean.
- » Once clean, wipe residue with a dry cloth.

## Kitchen

### Equipment

- » Disinfectant, dish liquid, mop, bucket, cloth, broom, scrubbing pad, rubbish bags.

### What to clean

- » Oven (inside and out), floors, tables, microwave, dishes, bench, sink, fridge (inside and out), rubbish bins.

### How to clean

- » **Oven:** (inside and out): get some warm water with dish washing liquid in it and a scrubbing pad and scrub top of oven and the inside.
- » **Tables:** wipe table with a cloth and warm water with dishwashing liquid.
- » **Dishes:** fill the sink with warm or hot water and dish liquid. Wash all dirty dishes and wipe down the bench.
- » **Sink:** when you have done the dishes clean the sink and the drains.
- » **Microwave:** take the glass plate out and wash it. Clean the microwave out with a warm, damp cloth. Return glass plate in once microwave is clean.
- » **Refrigerator:** take out old food and wipe down fridge with warm damp cloth both inside and out.
- » **Floors:** Sweep up all rubbish and place in bin. Mop down floors with disinfectant and hot water.
- » **Rubbish bins:** Change bin if needed.

## 7.14 Public changing rooms checklist

Men's public changing room			
Check	Quantity	Faults	Description
Door hinges			
Door locks			
Seats			
Lights			
Showers			
Hand basins			
Rubbish bins			

Women's public changing room			
Check	Quantity	Faults	Description
Door hinges			
Door locks			
Seats			
Lights			
Showers			
Hand basins			
Sanitary bins			
Rubbish bins			

Family/Accessible public changing room			
Check	Quantity	Faults	Description
Door hinges			
Door locks			
Seats			
Lights			
Showers			
Hand basins			
Sanitary bins			
Rubbish bins			
Hoists			
Handrails			
Change Table			
Emergency pull cords/buttons			
Sharps bin			

## 7.15 Staff changing rooms checklist

Men's staff changing room			
Check	Quantity	Faults	Description
Door hinges			
Door locks			
Seats			
Lights			
Showers			
Hand basins			
Rubbish bins			

Women's staff changing room			
Check	Quantity	Faults	Description
Door hinges			
Door locks			
Seats			
Lights			
Showers			
Hand basins			
Sanitary bins			
Rubbish bins			

Accessible staff changing room			
Check	Quantity	Faults	Description
Door hinges			
Door locks			
Seats			
Lights			
Showers			
Hand basins			
Sanitary bins			
Rubbish bins			