

# Pool Maintenance Policy

## Essential Summary

Youth Justice NSW (YJNSW) pools are considered Public Swimming Pools under the Department of Health NSW Public Swimming Pool and Spa Pool Advisory Document 2013 and NSW Health Act 2010. As Public Swimming Pools, they are required to meet specific minimum standards of water quality, and pool maintenance standards.

This policy provides employees with the operational requirements for the daily care and management of centre swimming pools.

Printed copies of this document may not be up to date.  
Ensure you have the latest version before using this document.

# Table of Contents

<b>1</b>	<b>Scope</b>	<b>4</b>
<b>2</b>	<b>Purpose</b>	<b>4</b>
<b>3</b>	<b>Definitions</b>	<b>4</b>
<b>4</b>	<b>Safety</b>	<b>4</b>
4.1	Safety signs within the pool environment	4
4.2	Water depth markings	5
4.3	Use of electrical equipment	5
4.4	Confined spaces	5
4.5	Emergency bodily fluid contamination management	5
<b>5</b>	<b>Daily care and management of the swimming pool</b>	<b>6</b>
5.1	Pool testing	6
5.2	Daily inspections	7
5.3	Daily vacuum cleaning	7
<b>6</b>	<b>Technical operations</b>	<b>7</b>
6.1	The recirculation system	7
6.2	Filtration	7
6.3	Disinfection	8
6.4	Chemical used to control pH	8
6.5	Operating to relevant health regulations	8
6.6	Water testing frequency and parameters	9
6.7	Microbiological water testing	9
6.8	Plant and equipment maintenance	10
6.9	Chemical dosing and corrective actions guide	10
<b>7</b>	<b>References</b>	<b>11</b>
7.1	Legislation	11
7.2	Policy	11

	7.3 Resources	11
<b>8</b>	<b>Document Information</b>	<b>11</b>
<b>9</b>	<b>Document History</b>	<b>11</b>

# 1 Scope

This policy applies to YJNSW custodial employees who are involved in the maintenance of the centre swimming pool.

# 2 Purpose

- The purpose of this policy is to provide maintenance requirements of the swimming pool
- clarify employee responsibilities in relation to the maintenance of swimming pools

# 3 Definitions

**Bather load** means a measure of the number of bathers in the pool.

**Confined Space** means a space determined by the hazards associated with the specific situation—not just because work is performed in a small space.




**Poolwerx** refers to the company contracted to YJNSW centres to monitor and conduct tests on pool water quality and operating pool equipment.

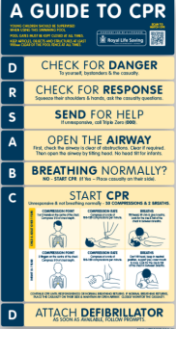
# 4 Safety

## 4.1 Safety signs within the pool environment

Recommend water safety signage which complies with Australian Standards 2416:2010 must be positioned around the swimming pool to warn young people and employees of the depths and known hazards associated with the aquatic environment.

The following signs must be situated around the pool accordingly and clearly visible:

 <p>Shallow Water No Diving</p>	<p>Shallow Water / No Diving clearly positioned on a vertical surface adjacent to the 1.1 metre shallow end of the swimming pool.</p>
 <p>No Diving</p>	<p>No Diving clearly positioned on a vertical surface adjacent to the halfway point (1.4 metre water depth) and the 1.7 metre end of the swimming pool.</p>
	<p>Correct pool behaviour rules must be clearly positioned on a vertical surface within the pool area which include:</p> <ul style="list-style-type: none"> <li>• No Diving</li> <li>• No Running</li> <li>• No Pushing</li> <li>• No Touching</li> <li>• No Bombing</li> <li>• No Peeing</li> <li>• No Sparring</li> <li>• No Dunking</li> </ul>

	<p>Procedures for CPR clearly positioned on a vertical surface within the pool area.</p>
---	--

## 4.2 Water depth markings

Metric depth markings must be co-located with water safety signage and highlight the pool depths 1.2m, 1.5m, and 2.0m. Markings must be situated to allow them to be viewed from within the pool and from the pool concourse. Markings must conform to the following characteristics; at least 100mm in height in a colour contrasting with their backgrounds, be posted at shallow water, deep water, and at changes in water depth.

## 4.3 Use of electrical equipment

All General Power Outlets (GPOs) located within the pool or plant room areas must have water proof covers installed and maintained.

## 4.4 Confined spaces

Pool filters, pool balance tanks, and pool backwash holdings are defined as confined spaces. NSW YJNSW prohibits any employee from entering any confined space in the workplace without the appropriate training and Entry Permit. Confined space laws and NSW Safe Work Guidelines must be followed at all times, including having a stand-by person in place to monitor the conditions inside a confined space from outside, and assist with communication.

## 4.5 Emergency bodily fluid contamination management

Pool cleaning chemicals and filter systems are not able to address all contamination issues. As such, response plans must be in place to minimise the risk of transmitting water borne diseases.

If a substantial amount of loose runny stool (diarrhoea) is introduced into the pool the following process must occur:

- The pool must be cleared of people.
- The faecal material must be removed as thoroughly as possible using a fine mesh scoop,
- Dose pool to a chlorine concentration of 20 mg/L and sustain for 13 hours,
- Thoroughly vacuum the pool,
- After 13 hours backwash the filter,
- When free chlorine is less than 10 mg/L re-open the pool,
- Record all actions on the pool log sheet.

**When a solid stool is introduced into the pool:**

- The pool must be cleared of people.
- The stool must be removed as soon as possible and disposed of in a toilet
- Check pool chemistry to ensure it complies with minimum criteria in the vicinity,
- Where pool chemistry does not comply with minimum criteria for disinfectant, pH and alkalinity the pool should be closed until the minimum criteria for disinfection is achieved,
- Once pool chemistry is satisfactory wait 20 minutes before re-opening the pool for swimming,
- Overnight perform a super chlorination of the pool,
- Complete a backwash to remove waste from the filter media.

#### **Where blood or vomit is introduced into a pool:**

- The pool must be cleared of people.
- Remove as much vomit material as possible and dispose of in a toilet.
- Check pool chemistry to ensure it complies with minimum criteria,
- If the pool chemistry does not comply with minimum criteria for disinfectant, pH and alkalinity the pool must be closed until the minimum criteria for disinfection is achieved,
- Once pool chemistry is satisfactory allow one full pool turnover before re-opening the pool for swimming,
- Complete a backwash to remove waste from the filter media.

Vomit, blood or faecal incident on the poolside must not be washed into pool side drains. It must be neutralised with a 2% chlorine solution (household bleach or a 5:1 dilution of sodium hypochlorite) for ten minutes before being washed away.

Contamination response plans for containing and addressing contamination in and around pools can be found on the NSW Health Website:

<https://www.health.nsw.gov.au/environment/publicpools/Pages/default.aspx>

## **5 Daily care and management of the swimming pool**

YJNSW swimming pools are considered a seasonal pool and will be open for use from the September school holiday period until the end of the April school holiday period. The use of the pool is limited to the schedule produced by the centre.

During swimming pool season, daily care and management of the swimming pool must be undertaken by YJNSW. Monitoring and maintenance of pool water quality and plan equipment is undertaken by Poolwerx on a monthly basis.

Poolwerx will provide a monthly report to the Centre Manager, detailing water test results and treatment recommendations.

### **5.1 Pool testing**

The pool water must be tested each day the pool is open for use to ensure the chemical levels are within the safe parameters set by local statutory authorities. It is a mandatory requirement (prescribed operating requirement of Schedule 1, *Public Health Regulation 2012*) that the disinfectant and pH levels of automatically dosed swimming pools be recorded prior to opening and once during the opening period. Additionally, the swimming pool must be manually tested once a day See section 7.3 for operating chemical guidelines, and a list of required daily tests.

## **5.2 Daily inspections**

The swimming pool area and plant room must be inspected daily by the YJNSW employee undertaking water testing prior to opening. A visual inspection of all pool related equipment must be undertaken as part of the daily inspection. Any concerns or malfunctioning equipment must be reported through local centre processes and addressed.

## **5.3 Daily vacuum cleaning**

It is imperative that any or all sediment be removed from the swimming pool on a daily basis during the swimming season. Failure to remove such materials will significantly interfere with the disinfection process and radically affect water quality and clarity. Vacuum cleaning must be carried out prior to the commencement of each day's activities. An automatic pool cleaner should never be placed in the pool while young people are in the pool and must be stored in a secure area when not in use.

# **6 Technical operations**

Maintaining a safe swimming pool requires pool water to be free of unwanted suspended or soluble matter. Pool water must have sufficient bactericide to bring about the immediate destruction of all harmful or pathogenic microorganisms which may be in the water. If these conditions are fulfilled, the pool water will be clean, clear, comfortable for swimmers and free of harmful organisms. It will also be significantly easier to keep the pool floor free of sediment and stop algae from growing. Although it is not always possible to achieve perfect conditions, effective filtration and disinfection can achieve excellent results.

When handling chemicals and hazardous substances, employees are required to follow the Safe Operating Procedure; Hazardous Chemicals.

## **6.1 The recirculation system**

The function of the swimming pool recirculation system can be best understood if it is thought as a transportation system that starts with water being taken from the pool to a point where it can be treated and returned to the pool. The round trip is commonly described as "turnover". Turnover can be expressed as the number of hours necessary to reticulate a volume of water equal to the volume contained within the pool. Alternatively, turnover can be described as the number of times in twenty-four hours that the volume of water is circulated, that is, a turnover of eight hours can also be expressed as a turnover of three.

## **6.2 Filtration**

The removal of solid particles by filtration is closely related to the function of disinfection by chemical treatment. To properly manage the swimming pool however, these distinctions must be properly understood.

Whilst the filter plant is of some value for its capacity to remove bacteria and disease producing organisms, its primary function is to remove solids, which if not removed would increase the need for chemical treatment and reduce the germ killing and oxidising power of the disinfection chemical and or treatment.

Filters perform their function of dirt removal through various principles, either singly or in combination with each other. Pool filters catch both the large and small dirt particles. The large particles include debris such as hair, insects and leaves.

### **6.3 Disinfection**

Without proper management, swimming pools can be breeding places for most water-borne infection and disease-producing organisms. Disinfection causes the destruction of organic matter and microorganisms in the water by bactericides. Adequate water re-circulation, correct dosing and testing of chemicals are necessary to achieve the requirements.

Currently, all YJNSW centres use sodium hypochlorite (chlorine), which is easily applied by a dosing system, or chlorine generated from a salt chlorinator system as the main disinfectant for their swimming pools.

### **6.4 Chemical used to control pH**

YJNSW centres currently use sodium bicarbonate to increase the alkalinity of the swimming pool (that is, increase pH) and hydrochloric acid or carbon dioxide to reduce the alkalinity of the swimming pool (that is, decrease pH).

Values 0-7 mean that the pool is considered to be acidic. Values 8-14 mean that the pool is considered to be alkaline.

### **6.5 Operating to relevant health regulations**

The *Department of Health NSW Public Swimming Pool and Spa Pool Guidelines* outline the relevant information on the minimum levels of chemicals and disinfectants for swimming pools and spas. This includes:

- disinfectants – general properties
- chemicals
- automatic control dosing
- construction and amenities
- hygiene
- testing
- record keeping
- operator qualifications
- water balancing
- total dissolved solids (TDS)
- health risks



## 6.6 Water testing frequency and parameters

Water testing must be completed and logged for future reference in line with the *NSW Swimming Pool and Spa Pool Guidelines*. Where automated in-line tests are recorded electronically, these should be downloaded at least monthly and stored with the manual testing results.

In addition to the date, time and pool temperature, the following information must be recorded for automatic control dosing pools:

Test	Minimum Manual Testing Frequency
<ul style="list-style-type: none"> <li>Free Chlorine</li> <li>Total Chlorine (Combined Chlorine)</li> <li>pH</li> <li>Temperature</li> </ul>	Prior to use (at open) and at a minimum of once during the day to confirm automated readings. (Automated readings should be logged at the same time)
<ul style="list-style-type: none"> <li>Reserve (Total) Alkalinity*</li> </ul>	Daily * Can be completed weekly if using liquid chlorine disinfection or carbon dioxide (CO2) pH control*
<ul style="list-style-type: none"> <li>Cyanuric Acid</li> </ul>	Weekly
<ul style="list-style-type: none"> <li>Bacteriological Sampling (continuous operation)</li> <li>Calcium Hardness</li> <li>Total Dissolved Solids (TDS)</li> <li>Turbidity</li> <li>Water Balance</li> </ul>	Monthly – by Poolwerx

Manual pool tests must be undertaken using a hand held tool, such as the Palintest Pool Test 6 or 9 Photometer.

Manual tests can be completed more frequently at the discretion of the centre, or in response to specific instructions from Poolwerx.

Pool Type	Chemical Parameters						
	Free Chlorine (mg/L) Minimum	Free Chlorine (mg/L) Minimum if the PH is >7.6	Total Chlorine (mg/L) Maximum	Total Combined Chlorine (mg/L) Maximum	pH Range	Total Alkalinity (mg/L) range	Cyanuric Acid
Outdoor Pool	1.0	2.0	10.0	1.0	7.2 – 7.6	80 - 200	Max 50ppm

The temperature of the water must not exceed 38 degrees Celsius.

Note: If Cyanuric Acid is used in the outdoor swimming pool free Chlorine must be min 3.0ppm.

## 6.7 Microbiological water testing

Monthly micro bacteriological tests on YJNSW centre swimming pools are carried out by Poolwerx on a monthly basis during swimming pool season. The results of this test should be stored with other testing logs.

## 6.8 Plant and equipment maintenance

Maintenance and facility inspections are a key part in keeping the YJNSW swimming pool as safe as possible for young people and employees.

On top of the daily visual inspections that are completed, a maintenance or other designated employee must confirm that all pool equipment, including pumps, filters, dosing equipment and pool cleaners are in working order on a weekly basis and whenever there is a significant, or unexplained change in water quality.

Due to the specialist nature of commercial swimming pool operation and high risk presented to users from contamination of swimming pool water, the YJNSW has engaged the services of Poolwerx a commercial pool specialist, to assist in the maintenance of plant and equipment associated with swimming pool water quality.

Poolwerx is required to perform the following tasks in accordance with the frequencies listed below:	
<b>Monthly</b>	
1	<i>Manual clean of the pH and Chlorine Measuring Electrodes and inline sample cell</i>
2	<i>Manual clean out and flush of the Dosing Pumps and associated parts</i>
3	<i>Internal re-calibration of all Chemical Controllers</i>
4	<i>Inspection and clean out of skimmer boxes, hair and lint strainers / inline filters</i>
5	<i>Inspection of seals</i>
6	<i>Independent Water Tests, Balance Calculations of Saturation Index and advice.</i>
7	<i>Supply chemicals</i>
8	<i>Monthly Microbiological Testings (samples taken to Lab)</i>
9	<i>Supply full Field Service Report</i>
<b>Annually</b>	
1	<i>Inspection of all Pumps</i>
2	<i>Clean Foot valves and Balance Tanks (as per WorkCover requirements)</i>
3	<i>Sand Filter Inspection</i>
4	<i>Service and Calibration of Water Testing Kit</i>
5	<i>Service chemical dosing system</i>
6	<i>Supply full Field Service Report and update on-site Log Books</i>

In addition to performing routine preventative maintenance, Poolwerx are the preferred supplier of reactive maintenance services for the swimming pool circulation and disinfection system.

## 6.9 Chemical dosing and corrective actions guide

Pool water should stay as clear as possible at all times. During peak periods, waters may become cloudy and a loss of clarity can be the result of high bather loads or imbalance of water chemicals.

Routine vacuuming and backwashing are the most effective means of maintaining and correcting clarity of pool water. Each centre must create and follow a safe operating process for their plant room equipment and processes, such as backwashing.

Backwashing must be used as a preventative measure of pool water management not as a corrective action. Optimum filter performance and its ability to filter particles from the water rely on regular backwashing.

## 7 References

### 7.1 Legislation

*NSW Health Act 2010*

*NSW Public Health Regulation 2012- schedule 1 Requirements for public swimming pools and Spa pools.*

*Work Health & Safety Act 2011*

*Work Health & Safety Regulation 2011*

### 7.2 Policy

*Pool Use Policy*

### 7.3 Resources

*RLSSA Guidelines for Safe Pool Operations*

*Department of Health NSW Public Swimming Pool and Spa Pool Advisory Document 2013*

*Control of Workplace Chemicals Procedure*

*Hazardous Substance Management Procedure.*

## 8 Document Information

---

<b>Title:</b>	Swimming Pool Policy
<b>Business Centre:</b>	Operations Unit
<b>Author:</b>	Project Officer, Custody
<b>Approver:</b>	Executive Director, YJNSW
<b>Date of Effect:</b>	3 September 2019
<b>Next Review Date:</b>	3 September 2022
<b>File Reference:</b>	D19/21194
<b>Key Words:</b>	Swimming pool, testing, inspection, first aid, safety

---

## 9 Document History

---

Version	Date	Reason for Amendment
1	3 September 2019	New policy.

---