|  |
| --- |
| Swimming Pool Risk Management Plan<Aquatic facility name><Aquatic facility operator><Date><Version> |
|  |

|  |
| --- |
|  |

Contents

[Contents 2](#_Toc54591598)

[Purpose 3](#_Toc54591599)

[About 3](#_Toc54591600)

[Scope 3](#_Toc54591601)

[Document history 3](#_Toc54591602)

[Note 3](#_Toc54591603)

[1. Staff roles, responsibilities, competencies and training requirements 4](#_Toc54591604)

[Roles and Responsibilities 4](#_Toc54591605)

[2. Facility, source water and treatment systems 5](#_Toc54591606)

[Premises Information 5](#_Toc54591607)

[Aquatic facility description 6](#_Toc54591608)

[Schematic and/or process flow diagram 8](#_Toc54591609)

[3. Water quality targets and treatment objectives 9](#_Toc54591610)

[Water quality operational control plan 9](#_Toc54591611)

[4. Hazard identification, risk assessment and control measures 10](#_Toc54591612)

[Risk register 11](#_Toc54591613)

[5. Operational and verification monitoring 12](#_Toc54591614)

[6. Incident management and response 15](#_Toc54591615)

[7. Data recording and reporting 16](#_Toc54591616)

[Records 16](#_Toc54591617)

[Document register 16](#_Toc54591618)

[Reporting 16](#_Toc54591619)

[Audit and review 17](#_Toc54591620)

[8. Glossary 18](#_Toc54591621)

[9. Appendices 19](#_Toc54591622)

[A. Risk management team 20](#_Toc54591623)

[B. Duties register 21](#_Toc54591624)

[C. List of key stakeholders 22](#_Toc54591625)

[D. Qualitative measures of consequence 23](#_Toc54591626)

[E. Qualitative descriptions – likelihood and risk 24](#_Toc54591627)

[Additional supporting documentation 25](#_Toc54591628)

[F. Risk action plan 26](#_Toc54591629)

[G. Risk treatment schedule and plan 27](#_Toc54591630)

[H. Corrective action form 28](#_Toc54591631)

[I. Training record form 29](#_Toc54591632)

[J. Aquatic facility water quality monitoring form 30](#_Toc54591633)

[K. Incident response form 31](#_Toc54591634)

[L. Water quality risk management plan review checklist 32](#_Toc54591635)

# Purpose

<Outline the purpose of the plan and what this plan aims to achieve.>

## About

****[Insert public swimming pools and spa pools name]****

<Provide a brief outline/summary of the organisation including its structure and/or insert a figure of the organisational structure.>

## Scope

<Outline the scope of the plan and who it applies to.>

### Document history

This is an optional component of the document – Delete if it is not relevant to your facility.

| Date of issue | Version | Prepared by | Approved by | Description of changes |
| --- | --- | --- | --- | --- |
| e.g., 12/12/2021 | e.g., 1.0 | e.g., John Doe |  | e.g., Initial draft  |
|  |  |  |  |  |
|  |  |  |  |  |

### Note

For further information on the compliance requirements public swimming pools and spa pools, please refer to the *NSW Public Health Act* 2010 and NSW Public Health Regulation 2022, and the NSW Health website [www.health.nsw.gov.au/environment/water/Pages/public-pools-and-spas.aspx](http://www.health.nsw.gov.au/environment/water/Pages/public-pools-and-spas.aspx)

# Staff roles, responsibilities, competencies, and training requirements

<Insert the role titles of staff and a brief description of their responsibilities in relation to this plan. Provide an overview of your current training management system and/or how you ensure training and development is provided. Include how you make sure all staff are aware of this plan and are trained in its implementation. Keep a record of staff training.>

## Roles and Responsibilities

| Role/title | Responsibilities | Training requirements for Water Quality Risk Management |
| --- | --- | --- |
| e.g., Pool operator | e.g., * Registration of public swimming pools and spa pools with council
* Implement the water quality risk management plan
* Review and manage the water quality risk management plan
* Manage training – new or refresher
* Have oversight and responsibility for water quality and incident response
 | e.g., Pool operator training |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Facility, source water and treatment systems

## Premises Information

|  |
| --- |
| General building information |
| Age of premises |  |
| Number of swimming pools and/or spa pools located at premises |  |
| Name of pool operator |  |
| Address of pool operator |  |
| Business name of proprietor |  |
| Term of lease (if any) |  |
| Address of premises |  |
| Contact details of pool operator  |  |
| Registration requirements (if applicable) |
| Name of registration holder (person or business) |  |
| Date of application for registration |  |
| Date of registration |  |
| Registration expiry date |  |
| Registration number |  |
| Conditions on registration (if applicable) |  |
| Use this section for any additional information  |
|  |

## Aquatic facility description

<Complete one for each public swimming pools and spa pools (i.e., pool, spa, interactive water feature)>

|  |  |  |  |
| --- | --- | --- | --- |
| PUBLIC POOLS NAME |   | Opening hours |  |
| Max. design bather load |  | Pool volume in litres |  | Balance tank in litres |  |

|  |
| --- |
| FILTRATION |
| Number of filters |  |
| Filter brand and model |  |
| Filter dimensions – diameter, height |  |
| Max. filtration design bather number |  |
| Filter media – sand, glass, precoat |  |
| Coagulant/flocculant used (include chemical, where, how and how much is dosed into the system) |  |
| Instrumentation for control (head loss, turbidity, coagulant dose, filtration rate) |  |

|  |
| --- |
| PUMPS |
| Number of circulation pumps |  |
| Are pumps speed-controlled? |  |
| What parameter controls the pump speed? |  |
| Pool circulation rate (kL/hr) – open hours |  |
| Pool circulation rate (kL/hr) – closed hours |  |

|  |
| --- |
| SOURCE WATER |
| Type of water used to fill public pool(e.g., rainwater, municipal supply) |  |
| Water supplier |  |
| Treatment process prior to entry to public pools |  |

|  |
| --- |
| pH CONTROL |
| Chemical used to increase pH |  |
| Chemical used to decrease pH |  |
| Supplier |  |
| Average storage time |  |
| pH set point |  |

|  |
| --- |
| PRIMARY DISINFECTION |
| Primary treatment – chlorine or bromine |  |
| Chemical used |  |
| Average storage time |  |
| Supplier |  |
| Disinfectant set point |  |
| Contact time |  |
| Continuous dosing system |  |
| Online monitoring system |  |
| SECONDARY DISINFECTION – e.g. ultraviolet (UV) disinfection or edit if different secondary disinfection used |
| Is UV disinfection installed?  |  |
| Date of installation |  |
| Brand/make/model |  |
| Online monitoring system |  |
| UV operational monitoring parameters as per the validated operating conditions (e.g., flow rate, UV lamp age, UV Transmittance (UVT), UV Intensity (UVI), UV dose) |  |

|  |
| --- |
| BACKFLOW PREVENTION |
| Location  |  |

|  |
| --- |
| CALCIUM HARDNESS |
| Method of managing calcium hardness levels |  |
| Supplier |  |
| Average storage time |  |

|  |
| --- |
| ALKALINITY |
| Chemical used to increase alkalinity |  |
| Chemical used to decrease alkalinity |  |
| Supplier |  |
| Average storage time |  |
| Operating range in mg/L |  |

|  |
| --- |
| BACKWASH |
| Are there backwash holding tank(s) in place? |  |
| Capacity of backwash holding tank(s) |  |
| Are tank(s) fitted with an overflow? |  |
| Method/rate of discharge of backwash water to sewer/waste/wash |  |
| If backwash water is reused describe treatment process and uses |  |
| Frequency of backwash |  |

## Schematic and/or process flow diagram

<Insert a schematic or drawing that shows the layout and treatment systems of the public swimming pools and spa pools. Consistent symbols and legends should be used. If the system is complex, multiple flow diagrams may be included. At a minimum, the schematic should include the following:

* all incoming water sources
* filtration steps
* all public swimming pools and spa pools
* primary and secondary disinfection points
* automated chemical dosing points
* automated monitoring points
* sample points for water quality monitoring
* all on-site water storages
* backflow prevention devices
* wastewater removal disposal point.>

# Water quality targets and treatment objectives

## Water quality operational control plan

|  |  |
| --- | --- |
| PUBLIC POOL NAME |  |

| Process step | Monitoring type | Sample location  | Regulatory value | Target range | Action range | Critical range | Action range corrective action guidance  | Person responsible | Critical range corrective action guidance | Person responsible |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| e.g., Free chlorine | e.g., Operational | e.g., Pool tank | e.g., Min = ≥ 1 mg/L | e.g., ≥ 3 mg/L | e.g., ≥ 2 mg/L | e.g., ≥1.5 mg/L | **e.g.,** **Investigate chlorine disinfection system operation** * Re-test.
* Check online monitoring trend line to confirm chlorine has been decreasing over time.
* Check pH.
* Check dosing pump operation.
* Check level of chlorine in the storage tank.
* Check if there is a split chlorine dosing line.
* Check if there is an injection point blockage.
* Re-prime chlorine pump.
* Check strength of chlorine and storage condition.
 | e.g., Public pool operator | **e.g.,****Investigate chlorine disinfection system operation** * Re-test.
* Check online monitoring trend line to confirm chlorine has been decreasing over time.
* Check pH.
* Check dosing pump operation.
* Check level of chlorine in the storage tank.
* Check if there is a split chlorine dosing line.
* Check if there is an injection point blockage.
* Re-prime chlorine pump.
* Prepare to close pool.
 | e.g., Public pool manager |
|  |  |  |  |  |  |  | **Rectify any problems** * If none, check calibration of auto-dosing, check total chlorine levels.
* Immediately contact facility manager and inform of actions.
* Record corrective action.
 |  | **Rectify any problems** * If none, check calibration of auto-dosing, check total chlorine levels.
* Immediately contact facility manager and inform of actions.
* Record corrective action.
 |  |
|  |  |  |  |  |  |  | **Aquatic facility manager*** Ensure appropriate action has been performed.

Review past data to identify any other issues. |  | **Aquatic facility manager** * Ensure appropriate action has been performed.
* Review past data to identify any other issues.
 |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

*Maximum values of operation may also be included.*

# Hazard identification, risk assessment and control measures

Water quality hazard and risk identification table – refer to Appendix D and E for information on risk assessment methodology.

| Water quality hazard | Hazardous event | Current controls | Identified by | Likelihood | Consequence | Risk | Additional possible control measures |
| --- | --- | --- | --- | --- | --- | --- | --- |
| MICROBIOLOGICAL | e.g., Faecal contamination | e.g.,* Faecal incident policy
* Ill-swimmer exclusion policy
* Pre-swim shower policy
* Swim nappy policy
* Water quality operational control plan
 | e.g.,* Decrease in chlorine residuals
* Faecal incident
 | e.g., Possible | e.g., Major | **e.g.,** **High** | * Incorporating pre‑swim showers education in *Learn to Swim* classes
* Additional on deck showers
 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| CHEMICAL |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| ENVIRONMENTAL |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## Risk register

|  |  |
| --- | --- |
| Date of risk review |  |
| Compiled by |  | Date |  |
| Reviewed by |  | Date |  |

| Risk ID | Risk category | Risk description  | Risk assessment | Adequacy of existing controls | Mitigating response | Risk owner | Status | Risk priority |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Likelihood | Consequences | Level of risk |
| 1 | e.g., Water quality | e.g., faecal contamination event in toddler pools | e.g., Possible | e.g., Major | **e.g., High** | **e.g., Amber** | Reduce | e.g., Aquatic facility operator | e.g., Open/ | e.g., High |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

***Transfer high-priority risks to the risk treatment schedule (***[***Appendix G***](#_Risk_treatment_schedule)***)***

# Operational and verification monitoring

|  |  |  |  |
| --- | --- | --- | --- |
| Aquatic facility name |  | Prepared by |  |
| Location |  | Date |  |

## Inspections

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameters | Target | Frequency of inspection | No. of inspections required while pool is open | Inspection location(s) | Record location of documents |
| Condition of facility | e.g., Clean, sanitary | e.g., Hourly | e.g., 10 | e.g., Toilets, change rooms | e.g., C-drive - Monitoring |
| Clarity of water | e.g., Lines are visible  | e.g., Hourly | e.g., 10 | e.g., Pool concourse | e.g., C-drive - Monitoring and hard copy printed and located in operation room |
| Filters are operating within specification (e.g., filtrate turbidity) | e.g., recommended turbidity, if measured immediately post filtration, is not more than 0.2 NTU | As per manufacturer’s instruction manual |  |  | e.g., C-drive - Monitoring and hard copy printed and located in operation room |
| Chlorine dosing equipment is operating with specification (e.g., chlorine dose setpoint) | As per manufacturer’s instruction manual |  |  |  | e.g., C-drive - Monitoring and hard copy printed and located in operation room |
| UV lamps are operating within specification (e.g., flow rate, UV lamp age, UV Transmittance (UVT), UV Intensity (UVI), UV dose) | As per manufacturer’s instruction manual | As per manufacturer’s instruction manual |  |  | e.g., C-drive - Monitoring and hard copy printed and located in operation room |
| Process control instrumentation has been calibrated | As per manufacturer’s instruction manual |  |  |  | e.g., C-drive - Monitoring and hard copy printed and located in operation room |

|  |  |  |  |
| --- | --- | --- | --- |
| Aquatic facility name |  | Prepared by |  |
| Location |  | Date |  |

## Monitoring

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameters | Target | Frequency of testing | No. of tests required while pool is open | Sample point  | Record location of documents |
| Temperature | e.g., 35 °C | e.g., 3 hours and/or increase in bather numbers, post incident | e.g., 12 hours open minimum 4 tests | e.g., Wet deck point 1 | e.g., ‘Monitoring log’ located in C-drive and hard copy printed and located in operation room |
| Free chlorine |  |  |  |  |  |
| Combined chlorine |  |  |  |  |  |
| Total chlorine |  |  |  |  |  |
| pH |  |  |  |  |  |
| Total alkalinity level |  |  |  |  |  |
| Cyanuric acid level |  |  |  |  |  |
| Calcium hardness |  |  |  |  |  |
| Water balance |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Aquatic facility name |  | Prepared by |  |
| Location |  | Date |  |

## Water quality verification monitoring

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameters | Regulatory Target | Frequency of testing | No. of tests;Reported to: | Sample point(s) | Record location of documents |
| *Pseudomonas aeruginosa* | Not detected in 100 mL | e.g., Monthly (first Tuesday of each month) | e.g., 3 samplese.g., Aquatic facility operator | e.g., Wet deck point 1e.g., 1 m markere.g., 2 m marker | e.g., C-drive – ‘Laboratory sample results’ |
| *Escherichia coli* | Not detected in 100 mL |  |  |  |  |
| Heterotrophic colony count | (Less than) < 100 cfu/ mL |  |  |  |  |
| Additional information: e.g., Test all water quality parameters when undertaking microbiological verification |

# Incident management and response

<Outline the procedures in place for possible incidents, how you manage incidents and how these are recorded. These procedures can be listed in the below table as detailed below. Provide a statement about training in incident management and outline the staff required to undertake responses in accordance with documented procedures >

| Incident | Document response procedure name | Record location | Reviewed  | Review date |
| --- | --- | --- | --- | --- |
| e.g., Faecal contamination  | e.g., Formed stool and vomit contamination response procedure | e.g., C-drive and hard copy printed and located in plant room.  | e.g., Post incident, annually | e.g., 05/05/2021 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Incident response staff and their responsibilities

<Outline the staff required to undertake responses in accordance with documented procedures.>

| Response | Responsible person | Contact information |
| --- | --- | --- |
| e.g., Faecal contamination | e.g., Public pool operator e.g., Pool closure, facility decontamination, incident investigation/close out etc.  | John Doe0400 000 000John.doe@incident.com.au |

# Data recording and reporting

<Outline how the public pool manages, maintains and stores all documentation and records relevant to this plan including the water quality risk management plan. Outline the types of records that are managed and stored e.g. training, operational and verification monitoring.>

## Records

### Document register

<List current policies, procedures and forms relevant to the water quality risk management plan.>

| Type | Document | Location | Review date |
| --- | --- | --- | --- |
| e.g., Policy, procedure, work instruction, guideline, form, code | e.g., Public swimming pools and spa pools operation | e.g., C drive - Operations | e.g., 12/12/2021 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Reporting

<Provide a summary of the key reporting requirements for the facility.>

| Report | Reported to | Frequency  | Responsible position |
| --- | --- | --- | --- |
| e.g., Non-compliance with microbiological parameters | e.g., Local council | e.g., Notify council within 24 hours of receiving a report from a laboratory with non-compliant results | e.g., Public pool operator  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Audit and review

<Outline the frequency of audits, who they are done by and how often this plan and/or relevant components (training, incident management, etc.) will be reviewed.>

| Components | Responsible person | Frequency  | Next review date |
| --- | --- | --- | --- |
| e.g., Incident management | e.g., John Doe | e.g., Monthly | e.g., 12/12/2021 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Glossary

Glossary of terms and abbreviations

| Term  | Definition |
| --- | --- |
| e.g., WQRMP | e.g., Water Quality Risk Management Plan |
| e.g., Source water | e.g., Water used to fill the aquatic facility and used as make-up water. Usually town water but could also include other potable water sources (provided it is introduced into the balance tank first). |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

# Appendices

## Risk management team

This is an optional component which may be beneficial to larger organisations with multiple employees.

<Include a list of team members who were involved in developing this plan. Record why team members were selected to participate in water quality risk management. Clearly outline the responsibilities of each member of the water quality risk management team.>

| Name | Organisation | Position | Water quality risk management responsibilities | Skills/knowledge/experience | Contact details |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Duties register

This is an optional component but may make it easier to clarity the accountabilities and responsibilities of each role within the aquatic facility.

| Duty – requirement of regulations | Description | Position e.g., Duty Manager | Position e.g., Senior swim teacher | Position e.g., Swim teacher | Positione.g., Training provider | Penalty |
| --- | --- | --- | --- | --- | --- | --- |
| <Insert duty>(46) Minimise risks | <Describe>e.g., * Undertake risk assessment
* Prepare WQRMP
* Develop & implement WQRMP
 | e.g., A | e.g., R | e.g., I | e.g., C | 20 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

R = Responsible A = Accountable C = Consult I = Inform (RACI)

## List of key stakeholders

This is an optional component.

| Stakeholder | Title | Function  | Requirements | Contact details |
| --- | --- | --- | --- | --- |
| e.g., John Doe | e.g., Environmental Health Officer | e.g., Regulate public swimming pools and spa pools | e.g., Public swimming pools and spa pools operator to show compliance with the regulations | Include: Email, business hours phone contact, after-hours phone contact |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## Qualitative measures of consequence

For the purposes of this plan, you are only required to assess a hazard based on the public health consequence. You may concentrate on the impacts in one area only (public health) or on several possible areas of impact. Sample areas such as media, legal, financial, and service delivery have been included. Public pools can also use their own qualitative measures of consequence to determine risk. The below are suggestions only.

| Severity level | Public health | Reputation/media | Legal/regulation | Financial / profit reduction | Service delivery |
| --- | --- | --- | --- | --- | --- |
| Insignificant | Isolated aesthetic issue**For water quality** – a water quality incident/event that has no public health impact | Minor adverse local public or medical attention or complaints | Legal issues managed by internal manuals or practicesBreach of internal policies or manuals without the need for formal investigation | Loss < $XkNet cash flow < 1% Budget overrun < 1% | No loss of serviceIssues rectified with corrective action |
| Minor | Minor health-related issue such as skin/eye irritation or isolated water quality issue**For water quality** – localised illness (diarrhoea) that does not require medical attention | Attention from media and/or concern from local community | Minor legal issues, non-compliances and breaches of regulation orMatter requires legal advice to address issues; internal breach of policies or manuals requiring a formal investigation | Loss $Xk–XkNet cash flow 1–X%Budget overrun 1–3% | Service restored within expected timeframes (e.g. ≤ 2 hours) |
| Moderate | Acute health impact such as a faecal incident or water quality repeatedly non-compliant with regulations**For water quality** – localised illness (diarrhoea) requiring medical attention | Significant adverse state-wide media/public attention | Serious breach of regulation with investigation or report to authority with prosecution and/or moderate fine possibleorRequired to operate under limited regulatory restrictions or orders; serious incident that requires legal representation | Loss $Xk–XkNet cash flow 4–20% Budget overrun 3–5% | Short-term disruption to service outside of expected timeframes (e.g. ≤ 12 hours) |
| Major | Probable health impact such as a diarrhoeal incident or pathogens detected, or facility impacted**For water quality** – widespread illness (more than three confirmed cases) requiring hospitalisation | Serious public or media outcry (national) | Major breach of regulation; major litigationorSignificant prosecution and fines; required to operate under significant regulatory restrictions or orders; government inquiry/intervention | Loss $10m–$40m Net cash flow 20–80% Budget overrun 5–10% | Long-term disruption to service with extended resources required to remedy (> 12 hours < 24 hours) |
| Extreme | A fatality, or long-term or permanent disabling effects on human health (more than one person)**For water quality** – fatality, disease secondary to water-borne illness | Serious public or media outcry (international) | Significant prosecution and fines; very serious ligation including class actionsorCriminal charges or civil litigation against the facility and/or personnel; registration revoked | Loss > $40m Net cash flow > 80% Budget overrun > 10% | Complete and indefinite disruption to service (≥ 24 hours) |

1. Qualitative descriptions – likelihood and risk

The below are suggestions only. Public swimming pools and spa pools can use their own qualitative measures of risk and likelihood.

|  |  |
| --- | --- |
| Descriptor | Description |
| Almost certain | Is expected to occur daily to weekly (52–365 times per year) |
| Likely  | May occur weekly (13–52 times per year) |
| Possible | May occur monthly (2–12 times per year) |
| Unlikely | Expected to occur annually (once per year) |
| Rare | May occur less than annually |

Risk matrix

|  |  |
| --- | --- |
| Likelihood | Consequence |
| Insignificant | Minor | Moderate | Major | Severe |
| **Almost certain** | **Medium** | **High** | **High** | **Extreme** | **Extreme** |
| **Likely** | **Medium** | **Medium** | **High** | **Extreme** | **Extreme** |
| **Possible** | **Low** | **Medium** | **Medium** | **High** | **High** |
| **Unlikely** | **Low** | **Low** | **Medium** | **Medium** | **Medium**  |
| **Rare** | **Low** | **Low** | **Low** | **Medium** |  **Medium** |

### ****Additional supporting documentation****

The following appendices are forms that can be used to assist you in recording how you are managing, implementing and responding to risk. The documents are intended for public swimming pools and spa pools that do not have existing documentation in place. You do not need to submit these forms with your plan to Council for registration however you may choose to use them so that you can provide evidence of water quality risk management.

1. Risk action plan

|  |  |  |  |
| --- | --- | --- | --- |
| Item risk |  | Ref. |  |
| Summary: recommended response and impact |  |

Action plan

|  |  |
| --- | --- |
| Proposed actions |  |
| Resource requirements |  |
| Responsibilities |  |
| Timing |  |
| Reporting and monitoring required |  |
| Name(position): |  | Reviewer |  |
| Date |  | Date |  |

## **Risk treatment schedule and plan**

|  |  |
| --- | --- |
| Date of risk review |  |
| Compiled by |  | Date |  |
| Reviewed by |  | Date |  |

| The risk in priority order from risk register | Possible risk treatment options | Risk rating after treatment | Result of cost-benefit analysisAccept/reject | Person responsible for implementation of option | Timetable for implementation | How will this risk and the treatment options be monitored? |
| --- | --- | --- | --- | --- | --- | --- |
|
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## Corrective action form

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | pH | Temperature | Free chlorine | Total chlorine | Combined chlorine | Cyanuric acid | Alkalinity | Calcium |
| Sample name |  |  |  |  |  |  |  |  |
| Result |  |  |  |  |  |  |  |  |
| Sample name | Date taken | *Escherichia coli* | Heterotrophic colony count | *Pseudomonas aeruginosa* |
|  |  |  |  |  |
|  |  |  |  |  |
| Root cause of failure (circle or bold the root cause) |
| Disinfection  |  Operator error  | Dosing fault  | Bather number  | Pump fault  |  Sample flow  | Other (specify): |
| Notes: |
| Preliminary investigation: causes, circumstances, faults, etc. |  |
| Actions taken |  |
| Dosing information  |  |
| Follow up action required |  |
| Rectified operational readings | pH | Temperature | Free chlorine | Total chlorine | Combined chlorine | Cyanuric acid | Alkalinity | Calcium |
|  |  |  |  |  |  |  |  |
| Water balance (e.g. LSI) |  |  |  |  |  |  |  |  |
| Meet regulations |  |  |  |  |  |  |  |  |
| Operator |  | Signed: | Date: |

## Training record form

|  |  |  |  |
| --- | --- | --- | --- |
| Staff name  |  | Supervisor |  |
| Position |  |
| Date employment began |  | Date employment ended |  |

Existing qualifications/training

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name of course | Provider | Date completed | Grade | Verification of training |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Proposed training

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  Name of course | Date training due | Training completed | Training carried out and by whom | Employee’s confirmation | Verification of training |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Comments |  |
| Review date |  | Review by |  |

## Public Swimming Pools and Spa Pools water quality monitoring form

Check prior to opening

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date |  | Public swimming pools and spa pools | <Name of your public pool> | Opening time: | Closing time: |
| **Time** | Free chlorine mg/L | Total chlorine mg/L | Combined chlorine mg/L | pH | Temp °C | Total alkalinity | Cyanuric acid | Calcium hardness | Water clarity NTU | Condition of facility | Filters operating | Are results compliant? | Corrective actions required | Signed by |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Water balancee.g. Langelier Saturation index (LSI)LSI = pH + TF + AF + CF – 12.1 |
|  | pH | Temperature factor | Alkalinity factor | Calcium factor | LSI result | Performed by |
| Factor |  |  |  |  |  |  |
| Close out |
| Name |  | Position |  |
| Signed |  | Date |  |
| Supervisor |  | Signed: | Date: |

## Incident response form

|  |  |
| --- | --- |
| Public pool name  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Date |  | Time |  |
| Reported by |  | Position |  |
| Nature of incident |
| Water quality  |  | Other |
| Water treatment asset failure  |  |
| Environmental pollution |  |
| Details (what happened, contributing factors) |
| Immediate actions taken |
| Incident management team |  |
|
| Actions recommended to be taken |
| Regulatory authorities notified  | Yes | No | Other stakeholders notifiedYes No |
| Time | Regulatory authority/stakeholder | Response |
|  |  |  |
|
|  |  |  |
| Actions requiring follow-up |
| Has WQRMP been reviewed? | Yes | No | Update to WQRMP required? | Yes | No | N/A |
| Verification and incident closure |
| 1. I am satisfied the corrective actions will prevent/reduce the likelihood and severity of the issues recurring and the incident can be closed out.2. All relevant parties have been advised of the corrective/preventative actions taken or decisions made in relation to this incident. |
| Name  | Title | Date |
| System close out |
| Name | Title  | Date |

## Water quality risk management plan review checklist

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date |  | Time |  | Facility |  |
| Team |  | Completed by |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Requirement | Yes | No | Comment |
| Has the public swimming pools and spa pools been registered with council? |  |  |  |
| Has a detailed water quality risk management plan been developed? |  |  |  |
| Does the water quality risk management plan clearly define: |
| **1**. Staff roles, responsibilities, competencies and training requirements.* Have key responsibilities been assigned to a staff member?
* Are staff trained for their responsibilities and are training records available?
 |  |  |  |
| **2**. Facility, source water and treatment systems * Includes schematic or treatment systems
 |  |  |  |
| **3**. Water quality targets and treatment objectives |  |  |  |
| **4**. Hazard identification, risk assessment and control measures |  |  |  |
| **5**. Operational and verification monitoring |  |  |  |
| **6**. Incident management and response* Are incident response procedures available and are staff trained in them?
 |  |  |  |
| **7**. Data recording and reporting  |  |  |  |
| Is the water in the swimming and spa pools maintained and tested in accordance with the regulations? |  |  |  |
| Are microbiological test results compliant with the regulations (Yes/No)? If No, has the council been notified and corrective actions taken? |  |  |  |
| Are all records that detail operational monitoring and verification available (for 6 months from the date the record was made)? |  |  |  |
| Does the public swimming pools and spa pools have adequate signage to support all internal policies (e.g., pre-swim shower policy)? |  |  |  |
| Are all areas clean?  |  |  |  |
| Are nappy change areas in the appropriate areas? |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Name |  | Position |  | Signed |  | Date |  |