



Physical Activity and Leisure Management Ltd

POOL TECHNICAL OPERATING PROCEDURE (PTOP)

SELF AUDIT CHECKLIST

The **POOL WATER TREATMENT ADVISORY GROUP** Code of Practice requires pool management to define and document its policy and procedures for the general operation of the pool water treatment. This is called the **POOL TECHNICAL OPERATING PROCEDURE (PTOP)**.

The **PTOP** forms a part of the risk assessment process for the whole pool facility and the subsequent formulation of pool safety operational procedures (PSOP).

It should take the form of a stand-alone document detailing a swimming pool's technical operation, which is part of the PSOP. The **PTOP** will be based on PWTAG published guidance, but more particularly the requirements of the suppliers, manufacturers and installers of plant and equipment. It will set out how the plant should function and be operated safely.

Just as significantly, the **PTOP** will sit alongside the PSOP, and will incorporate the technical considerations that provide a healthy, enjoyable, satisfying and safe experience for users.

The following **CHECKLIST** should be completed to ascertain whether your facility complies with the PWTAG Code of Practice, and if there are any weaknesses, how they could be strengthened. The completed checklist can then be measured against the PWTAG recommended Code of Practice (www.pwtag.org)

Contents:

Section 1:	Statement of Policy.
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Section 7:	Chemical Safety.
Section 8:	Heating and Ventilation Plant.
Section 9:	Records and Logs.
Section 10:	Emergency Procedures for Pool Water, Heating and Ventilation Plant.

Facility Details

Required information	Example	To be completed
Name and full address of the pool(s)		
Contact details	Telephone; e.mail; website; social media	
Type of premises	Leisure centre; swimming pool; fitness/sports club; hotel/conference centre; spa centre; holiday park; etc	
Ownership of premises	Local authority; commercial enterprise; privately owned; charitable trust; educational organisation; HM Forces etc	
Management of premises	Local authority, commercial management; charitable trust; educational organisation; HM Forces; etc	
Facility Manager Name		
How many pools are on this site?		
What is the principal function of each pool?	Competition; teaching; general recreation; hydrotherapy; interactive water features; paddling pool; diving; splash/catch pool; etc	
Age of premises		
What is the water supply at this site?	Mains, private bore hole, etc	
Water Authority		

	Section Heading & Purpose	Requisites	Evidence Provided
1. STATEMENT OF POLICY To indicate that the operation is compliant with legal requirements, and industry best practice and guidance. In accordance with PWTAG model Code of Practice: Sections 1; 2; 6.35	Management System	How is current legislative, ACOP and industry best practice information, regarding the operation of your pool, provided to yourself and employees. How is that knowledge maintained as being current, in order to comply with PWTAG Code of Practice. Is there a management flow chart to identify levels of responsibility? What are the training and qualification(s) requirements for key staff at the pool, throughout the flow chart of responsibilities. Is there a competent person appointed to assess the risks associated with hazardous substances in the workplace, and to put in place procedures to eliminate or control those risks. Who carries out risk assessments and reviews? What is the process for accepting risk assessments as organisation policies? What is the frequency of assessment reviews?	
In accordance with PWTAG model Code of Practice: Section 3	Staff structure and responsibilities To ensure that a technically competent person is always available.	What are the minimum technical qualifications required , for staff who are responsible for pool plant operations, and water quality management. What are the minimum technical staff levels required, during all times that the pool is available for use.	

In accordance with PWTAG model Code of Practice: Section 4	Description of pool(s) and operation To indicate that the use of the pool, and the demands made upon the technical operation are known and understood.	List and confirm the:- 2. pool dimensions 3. volume 4. normal hours of operation (weekend changes) 5. number of days per week/weeks per year. 6. type of use (competitive training; instructional; general recreational; medical/therapeutic; etc)	
In accordance with PWTAG model Code of Practice: Section 5. In accordance with NHS/PHE swimming pool investigation; generic check list for cryptosporidium outbreaks.	Schematic of swimming pool system and key indicators The ability of the technical operation to circulate, filter, and chemically treat water at an appropriate rate. Identification of circulation dead-legs.	1. Is there a schematic of the pool's circulation system? 2. Is it current, relevant and accurate? 3. Is it sufficient to identify any possible dead-legs in the circulation system?	

2. DOCUMENTATION To indicate that the operation is compliant with legal requirements, and industry best practice and guidance, and that all documentation is valid, relevant and current. In accordance with the Management of Health & Safety at Work Regulations 1999	Normal operational procedures for the pool water, heating and ventilation plant.	Is there a list of competent persons who can assess the risks associated with hazards and hazardous substances in the workplace? Are there documented risk assessments and control procedures in place, for the technical operation of the pool, for:- 1. Lone working 2. Noise 3. COSHH 4. Cryptosporidium outbreak 5. Manual handling 6. Working at heights 7. Confined spaces 8. Fire 9. Personal Protective Equipment 10. Pregnancy at Work How are these risk assessments and control procedures communicated to relevant staff?	
In accordance with NHS/PHE swimming pool investigation; generic check list for cryptosporidium outbreaks.	Site Specific Operating Procedure	1. Is there an up-to-date and acknowledged PSOP for the pool(s)? 2. Is there an up-to-date, acknowledged Technical Operating Procedure for the pool(s)?	
In accordance with PWTAG model Code of Practice: Section 6.34	Confined spaces Control of hazards to staff	1. Is there a register (identification) of confined spaces 2. What are the control methods for staff/contractors to work in identified areas.	

In accordance with NHS/PHE swimming pool investigation; generic check list for cryptosporidium outbreaks. In accordance with PWTAG model Code of Practice: Section 6.35	Water treatment	- Does the site have a 'chemical traffic light' system? - Are up-to-date Safety Data Sheets held for all chemicals used?	
In accordance with PWTAG model Code of Practice: Section 6.1; 6.2	Public health hazards	Do all risk assessments take into account:- - Death through drowning, including hair and limb entrapment - Neck and head injuries from diving into shallow water or hitting other swimmers - Injuries from falls, slipping, etc. - Ingestion of pool water containing pathogens including the protozoal parasites that can cause gastroenteritis - Contact with contaminated water, especially in contact with open wounds - Inhalation of aerosols containing hazards e.g. <i>Legionella species</i> in distributed water, such as when using showers, etc. - Skin infections of the feet, including warts, verruca's and athlete's foot - Possible exacerbation of asthma due to excessive disinfection by-products in the air - Illness from water contaminated by chemicals - Potential drowning where cloudy water prevents surveillance of swimmers under the water - Cuts and abrasions from sharp edges, cracked tiles.	
In accordance with PWTAG model Code of Practice: Section 6.3	Mains water quality	What is the frequency of testing and recording of the mains supply water, to include:- - pH - total alkalinity - calcium hardness - total dissolved solids - temperature.	

3. BATHER HYGIENE PROCEDURES. To show that the operation makes all reasonable efforts to reduce the level of pollution in its pool(s), and to remove that which cannot be prevented. In accordance with PWTAG model Code of Practice: Sections 6.19; 6.20; 6.21	Pre-swim hygiene Toilet and shower provision Babies and very young children	What information is made available to users, and in what format, related to pre-swim hygiene, and contra-indicators, including suspected cryptosporidium, and restrictions on the use of a pool? 1. What is the pre-swim toilet and shower provision? 2. What is its location(s)? 3. What methods are used to encourage use? Are there specified periods of use? What is the appropriate swim wear and availability specified for babies and young children? What provision is available for baby/toddler changing facilities?	
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4. CLEANLINESS AND CLEANING REGIMES To show that the operation makes all reasonable efforts to remove that which cannot be prevented. In accordance with PWTAG model Code of Practice: Section 6.23	Showers	What are the:- 1. cleaning protocols and frequencies 2. cleaning products used	
In accordance with PWTAG model Code of Practice: Section 6.24	Pool covers	What are the:- 1. cleaning protocols and frequencies 2. cleaning products used	
In accordance with PWTAG model Code of Practice: Section 6.25	Pool equipment	With regard to pool hall surfaces and ancillary areas, pool-use equipment, and swim aids, what is the:- 1. frequency of cleaning 2. which cleaning products are used. 3. how are floor-cleaning chemicals prevented from entering the pool.	
	Surface Bio-films	What are the:- 1. cleaning protocols and frequencies 2. cleaning products used	
In accordance with PWTAG model Code of Practice: Section 6.26	Transfer channels	What are the:- 1. cleaning protocols and frequencies 2. cleaning products used	

In accordance with PWTAG model Code of Practice: Section 6.27	Balance tanks	What are the:- 1. frequencies of inspection 2. cleaning protocols and frequencies 3. cleaning products used	
In accordance with PWTAG model Code of Practice: Section 6.28	Pool bottom	What are the:- 1. cleaning protocols and frequencies 2. cleaning products used	

5. POOL WATER QUALITY How does the establishment confirm that the pool water treatment process complies with current legislation and industry best practice. Normal operational procedures for the management of pool water. In accordance with PWTAG model Code of Practice: Section 6.1		How does the normal operating procedure specifically take into account:- 1. Public health hazards 2. Mains water quality and storage, 3. Dilution and drainage, 4. Coagulation, 5. Filtration and 6. Disinfection.	
5.a. Pool water clarity In accordance with PWTAG model Code of Practice: Section 6.4		How is pool water clarity and turbidity measured and monitored to ensure no danger to bathers.	
5.b. Pool Water Circulation In accordance with PWTAG model Code of Practice: Section 6.8 In accordance with NHS/PHE swimming pool investigation; generic check list for cryptosporidium outbreaks.	Bathing load. To ensure that the pool does not become overloaded with pollution. Flow rate To confirm the rate of flow through the circulation and filtration system.	What is the maximum bathing load (number of bathers) allowed:- 1. at any one time 2. per activity 3. per operational day 1. Is a working flow meter installed. 2. Is the flow rate during normal operation, and backwashing, measured and recorded?	

In accordance with PWTAG model Code of Practice: Section 6.9	Turnover period To identify how long it takes to circulate a body of water equal to the capacity of the pool	How is the turnover period calculated, measured and recorded.	
In accordance with PWTAG model Code of Practice: Section 6.11	Water circulation To ensure that pollution is not allowed to form and remain within the pool.	1. Does the water treatment system for this pool operate continuously, throughout all times that the pool is available for use? 2. Is there an up-to-date, as installed, schematic of the pool(s) water circulation system?	
In accordance with PWTAG model Code of Practice: Section 6.12	Surface water removal	What is the type/design of surface water removal system and bottom drains.	
In accordance with PWTAG model Code of Practice: Section 6.13	Inlets and outlets To prevent the risk of entrapment, without reducing flow.	1. How many inlets and outlets does this pool have 2. Are grilles and covers fitted in accordance with BS EN 13451-3. 3. What is the method and frequency of inspection of these fittings?	
In accordance with PWTAG model Code of Practice: Section 6.10	Dye testing To ensure that there are adequate hydraulic movement within the pool	Was the pool dye tested when first commissioned, and what is the frequency of further, regular dye testing.	
5.c. Coagulation In accordance with PWTAG model Code of Practice: Section 6.18	Coagulation To assist in the removal of pollution, through filtration.	1. Which coagulant is used. 2. What is the method and rate of dosing	

5.d. Filtration In accordance with PWTAG model Code of Practice: Section 6.14	Filters and filtration rate To ensure that adequate filtration is provided, for the type and use of the pool.	What is the:- 1. Type and number of filters 2. What is the total surface area and bed depth of filter media? 3. What is the filter media, and frequency of media change	
In accordance with PWTAG model Code of Practice: Section 6.17	Backwashing To ensure that filters and media are cleaned and able to perform at their optimum level.	What are the:- 1. What are the frequency and timings of filter backwashing? 2. What are the trigger points for backwashing? 3. Are working pressure gauges installed?	
In accordance with PWTAG model Code of Practice: Section 6.15	Serviceable filters To ensure that filtration services are adequate for the use of the pool.	Are the filters designed in accordance with industry standards and requirements?	
In accordance with PWTAG model Code of Practice: Section 6.16	Annual inspection To identify any damage or fall off in efficiency.	What is the frequency for the internal inspection of filters for wear and tear, or other damage, and issues with the filter medium?	
5.e. Disinfection In accordance with PWTAG model Code of Practice: Section 6.5	Primary disinfection	1. What is the primary disinfectant used and the method used to introduce it. 2. What are the acceptable levels for safe operation 3. How is it monitored?	

In accordance with PWTAG model Code of Practice: Section 6.6	Secondary disinfection To assist in the prevention of <i>cryptosporidium</i> and to reduce combined chlorine levels	1. If any secondary disinfection is installed, how is it administered and monitored? 2. If Ultra Violet light is installed, is it validated to NSF/ANSI 50? 3. What is the frequency of re-validation?	
In accordance with PWTAG model Code of Practice: Section 6.7	Dilution with fresh water To reduce and remove the amount of pollution within the pool, including the build-up of chemical compounds.	1. What is the rate of dilution. 2. How is it measured and recorded.	
5.f. pH stabilisation	To control the pH of pool water, to enable optimum performance of disinfectants, and provide bather comfort.	1. What is the primary pH stabiliser used and the method used to introduce it. 2. What are the acceptable levels for safe operation 3. How is it monitored?	

In accordance with PWTAG
model Code of Practice:
Section 6.29

In accordance with PWTAG
model Code of Practice:
Section 6.30

Monitoring water quality

Microbiological testing

To ensure that water is bacteriologically fit for use, and presents no risk to bathers.

- pH
- Total alkalinity
- Calcium hardness
- Total dissolved solids
- temperature

1. which tests are carried out, and frequency?
2. where are water test readings recorded?
3. does the establishment have a traffic lights system of target readings
4. are test kit manufacturers' instructions are complied with.
5. are written, detailed actions available to follow for unexpected test results.
6. is there a comparison of readouts from automatic controller against manual test results.
7. is the calibration of equipment carried out in accordance with manufacturers' instructions.

1. frequency of microbiological testing.
2. name of (UKAS registered) testing laboratory.
3. circumstances for additional testing understood by the pool operator, and the responsible person.

In accordance with PWTAG model Code of Practice: Section 6.31	Acting on failures/pool closure To recognise and deal with unacceptable bacteriological results.	Are there written instructions of the actions for staff to follow, should there be unsatisfactory microbiological test results.	
7. CHEMICAL SAFETY In accordance with PWTAG model Code of Practice: Section 6.32 In accordance with PWTAG model Code of Practice: Section 6.33 In accordance with PWTAG model Code of Practice: Section 6.35	Plant room Control the risks in a multi-hazard area Safety systems provided and maintained To ensure the safety of staff, public and others. Chemical safety To ensure the safety of bathers, staff, public and others.	1. What is the security and access control to the plant room, and chemical storage areas/rooms. 2. Is there an asset register of the plant room installation, and planned programme of inspection and maintenance. 1. Is there a register of safety equipment and PPE, that allows users to report damage, malfunction or expiry dates. 2. Is the provision and location of PPE adequate and personal. 3. What is the frequency of PPE inspection and planned programme of PPE maintenance. Is there a chemical assessment to address, control or eliminate identified risks to:- • general public • employees • other authorised persons • others that may be affected by the actions or inactions taken during the operation of the pool • Non-liquid chemicals are kept dry until dissolved in water.	

In accordance with PWTAG model Code of Practice: Section 6.36 In accordance with HSG 179, Para 242/243	Training in chemical handling. To ensure the safety of staff, public and others.	1. Appropriate training and instruction must be given to those staff required to handle, transport, store or use chemicals. 2. Such training must be recorded on staff records. 3. How are staff informed and trained in chemical safety?	
In accordance with PWTAG model Code of Practice: Section 6.33; 6.37	Personal protective equipment (PPE) To ensure the safety of staff.	Appropriate personal protective equipment must be provided, according to suppliers' advice, on an individual provision	
In accordance with PWTAG model Code of Practice: Section 6.38	Chemical spillage To ensure the safety of staff, public and others.	Appropriate action for dealing with the spillage of chemicals must be included in the emergency action plan, and that information available for all staff	
In accordance with PWTAG model Code of Practice: Section 6.39	Safety information on site To ensure the safety of staff, public and others	First aid instructions must be displayed for each chemical.	
In accordance with PWTAG model Code of Practice: Section 6.40	First aid To ensure the safety of staff.	First aid provision must be provided for dealing with contact with chemicals, including eyewash facilities and running water.	
In accordance with PWTAG model Code of Practice: Section 6.41	Delivery of chemicals To ensure the safety of staff, public and delivery drivers, including:-	Are there written instructions available to all authorised persons, for the:- 1. delivery of chemicals, including the control of risks to public and others.	

In accordance with PWTAG model Code of Practice: Section 6.42	a) Bulk delivery of sodium hypochlorite and hydrochloric acid.	2. the method of handling chemical containers is described in these procedures and Cleaning protocol for chemical storeroom.	
In accordance with PWTAG model Code of Practice: Section 6.43	b) Transport from offloading area to store	3. storage of solid chemicals.	
In accordance with PWTAG model Code of Practice: Section 6.44	c) Chemical store	4. protection of chemicals against accidental spillage or mixing. Is there a procedure to ensure:- 5. containers are kept upright; 6. that chemicals are used in stock rotation. 7. liquid chemicals are not stored above solid chemicals Does the plant room:- 8. have strictly controlled access, that cannot be breached by unauthorised persons. 9. have warning signs fixed to chemical containers, and store room external doors. 10. Have clearly labelled fill points, which are locked when not in use.	
In accordance with PWTAG model Code of Practice: Section 6.47	Chemical line safety To ensure the safety of staff.	1. Are all chemical pipework, suction lines, delivery lines and tanks clearly labelled to identify the contents and the direction of flow? 2. Are all pipes used for delivery of chemicals to injection points are double sheathed? 3. Are all chemical injection points are clearly labelled?	

In accordance with PWTAG model Code of Practice: Section 6.45	Hand Dosing of Chemicals To ensure the safety of staff and public.	4. Are disinfectant and pH dosing systems kept separate, to reduce the risk of accidental mixing? 5. Are dosing sets separated in individual bunds?	
In accordance with PWTAG model Code of Practice: Section 6.46	Chemical dosing operations To ensure the safety of staff.	1. Are there written restrictions on hand dosing of chemicals into the pool? 2. Are there written instructions of the methodology of hand dosing, if necessary, and are understood by all staff?	
In accordance with PWTAG model Code of Practice: Section 6.49	Preparing dosing chemicals To ensure the safety of staff and public.	Are there written procedures provided for:- 1. Day tank filling, 2. Mixing or diluting chemicals 3. Cleaning injectors. 4. Action of automatic dosing controls should they stop or fail. Are there written instructions for the mixing of chemicals?	

8. HEATING AND VENTILATION PLANT In accordance with PWTAG model Code of Practice: Section 6.5 In accordance with PWTAG model Code of Practice: Section 6.6	Heating and air circulation To ensure the comfort of public and control of humidity in the pool hall. Pool hall air To ensure the comfort of public and control of humidity in the pool hall.	Are records maintained of the temperature ranges for pool water? 1. Records are maintained for temperature ranges for pool hall air. 2. Records are maintained for relative humidity ranges for pool hall air.	
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9. RECORDS AND LOGS In accordance with PWTAG model Code of Practice: Section 9.0	Legal requirement to maintain adequate records/documents of performance.	1. Daily swimming pool water log, including flow rate and dilution records. 2. Monthly bacteriological log 3. Swimming pool water incident log and faecal accident log 4. Automatic monitoring calibration 5. Monthly inspection of safety equipment and PPE 6. Staff training in handling chemicals 7. Staff training in pool water testing.	
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10. EMERGENCY PROCEDURES FOR POOL WATER, HEATING AND VENTILATION PLANT. In accordance with PWTAG model Code of Practice: Section 8.1 In accordance with PWTAG model Code of Practice: Section 8.2; 8.4 In accordance with PWTAG model Code of Practice: Section 8.3 In accordance with PWTAG model Code of Practice: Section 8.3 In accordance with PWTAG model Code of Practice: Section 8.5	Faecal accidents and Cryptosporidium To control the risk of infection. Blood and vomit pool water contamination To control the risk of infection. Blood spillage on the poolside To control the risk of infection. Vomit on the poolside. To control the risk of infection. Pool closure and Microbiological contamination To control the risk of infection.	Is there a written procedure for dealing with faecal fouling in accordance with PWTAG recommendations? Are there a written procedures for dealing with significant amounts of blood or vomit in the pool? Is there a written procedure for dealing with significant amounts of blood spillage on the poolside? Are there written procedures for dealing with significant amounts of vomit on the poolside? Are there written circumstances for the necessary closure of the pool:- 1. due to chemical or physical evidence of unsatisfactory disinfection. 2. due to gross contamination as indicated by microbiological reports.	
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In accordance with PWTAG model Code of Practice: Section 8.6	Toxic gas leaks To ensure the safety of staff and public.	Is there a written emergency action plan for dealing with:- 1. any major release of toxic gas, to include the safety of staff and customers. 2. Emergency evacuation arrangements and co-ordination. 3. Consultation with emergency services, during preparation of this plan.	
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