

Health & Safety Guide

Swimming Pool Safety Supplement

Prepared by Environmental Health, Great Yarmouth Borough Council



January 2008

Information To
Help You Find Your Way



Health & Safety
A Guide for Small Businesses



GREAT YARMOUTH
BOROUGH COUNCIL

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Introduction

There are health and safety issues that are very specific to the operation of swimming pools that can not be covered in our main guide.

The aim of this supplement is to provide pool owners and operators with information on the main risks associated with swimming pool operation together with details of measures that can be taken to ensure that a safe environment is provided for pool users and employees.

The information provided in this guide is what is recognised and generally accepted as good practice for pool operation and it is designed to be used in conjunction with the main guide which provides information on general health and safety matters that are common to most businesses including swimming pool operators e.g.:-

- i) Risk Assessment**
- ii) First Aid and Accident Reporting**
- iii) Control of Substances Hazardous to Health**
- iv) Electrical Safety**
- v) Young Workers**
- vi) Health and Safety Policy Documents.**

At the end of this supplement you will find a number of inspection checklists which have been developed for your use.

More detailed information on swimming pool operation and design can be found in HSC Guidance 'Managing Health and Safety in Swimming Pools' available from HSE Books, Tel: 07787 881165. It is recommended that all pool operators obtain a copy of this guide.

The information in this guide is by no means exhaustive and you may have specific hazards in your premises that it does not cover. The Health Safety & Licensing Team at Environmental Health will be happy to advise you on any health and safety query you may have. Please do not hesitate to contact them on 01493 846478 Or email g-yarmouth@cieh.org.uk

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The Pool

It is important that the pool and surround area are maintained in a safe condition. In particular:-

General Environment

- ◆ The swimming pool area, including changing rooms, should be maintained at a comfortable temperature.
(As a guide, the air temperature should be 1°C higher than the water temperature)
- ◆ Ventilation should be draught-free.
- ◆ Lighting should be such that users and lifeguards are not subject to excessive glare and all of the pool area must be clearly visible.
- ◆ Emergency lighting must be provided where a loss of light would create a safety risk and be tested daily.
- ◆ Glazing should be of a suitable safety material and be marked if there is a danger of people coming into contact with it.
- ◆ The pool, surround, changing rooms and other areas must be kept in a clean condition.
- ◆ The steps providing access into the pool must be securely fitted and be in good condition & not create a risk of entrapment between the treads & the pool wall.



- ◆ The floor area around the pool must be in a good condition not slippery and any large changes in level must be adequately highlighted.

Maintenance

Due to the wet and corrosive nature of the pool and associated areas, a system of correct and regular maintenance by competent persons is essential. In particular:-

- ◆ Manufacturer's guidance on maintenance requirements should be complied with. If any works need to be undertaken when the pool is open, suitable precautions must be taken to protect the public.
- ◆ Boilers should be thoroughly examined on a regular basis by a competent person.
- ◆ Ventilation systems should be examined regularly.
- ◆ Asbestos was often used in boiler rooms around the boiler and for lagging pipes. Boarding containing asbestos materials may have been used in the construction of your shower rooms or in other facilities you provide. In most cases if the asbestos material is in good condition it can be left in place however if any asbestos needs removing you must seek the advice of a specialist as the work may need to be carried out by a licensed asbestos removal company. Section 5 of the main guide provides further advice on this matter.

Preventing Access to the Pool

It is important that you have effective measures in place to prevent unauthorised access to your pool, plant rooms and chemical stores when they are not



in use. If pool covers are your means of preventing access to the pool, they must be able to be secured continuously around the edges and be able to support the weight of a person falling onto them.

Outdoor Pools

High walls and fences around pools may be inadequate so you should assess the risk and take appropriate measures. This may mean the installation of intruder lighting/alarms, in addition to fencing. Signs prohibiting unauthorised use of the pool should also be displayed in conspicuous positions, or around the pool area.

Controlling Admissions

It is important that you assess the maximum number of persons that can be safely admitted to the pool. As a guide 3m² per person should be allowed for bather safety.

You will also need to consider the number of young children allowed in the pool. The current guidance is that children under 8 should be accompanied by an adult and that one adult should only accompany up to two children under 8. However, this may need to be altered if your pool has a lot of water features and high risk activities. In this case you may decide to increase supervision requirements.

Electricity

The main risks of electricity (shocks, burns, fires, explosions) are increased in the wet and corrosive conditions around pools. Precautions therefore need to be taken:

- ◆ Socket outlets should not normally be located in wet areas. However where this is necessary they must be designed for this type of environment.

- ◆ Any sockets should be protected by a residual current device (not exceeding 30 milliamps). This must be checked daily and tested at least every three months by a competent person. It is advisable to record when checks have been completed.
- ◆ Any electrical equipment used near the poolside should be designed to withstand immersion. If not it must only be used when the pool is not occupied and fitted with a restraint (e.g. chain or a barrier) so that it cannot fall into the pool.
- ◆ Appliances including audio equipment should be located in dry areas
- ◆ Isolating facilities should be provided to enable parts of the installation to be disconnected to allow for routine maintenance/repair.

It is important that the electrical installation and portable appliances are maintained in a safe condition see Section 4 of the main guide for further information.

Safety Signs

Vital safety information can be conveyed by means of suitable and prominently positioned safety notices.



Signs are important where:-

- ◆ There are sudden changes in depth, especially at shallow and deep ends.
- ◆ You need to show where it is unsafe to swim or dive
- ◆ It is necessary to provide instructions on safe use of the pool or equipment e.g. slides

The above picture shows an example of a safety sign used at a poolside. Signs should comply with current Safety Signs Regulations. That is that they should be pictorial supplemented by text as necessary.

They must be clearly visible, and maintained in good condition. The signs used have a red border with the symbol being black on a white background see below:



Equipment provided for bathers use

Many of the small pools provided in the Great Yarmouth area do not have diving boards or large slides so detailed guidance on this equipment has not been included within this guide. However for those pool operators who have such equipment a brief information checklist sheet on slides and diving boards is included at the end of this guide.

Further detailed information on equipment such as slides can be found in the HSE document referenced in the introduction

Pool Outlets

In recent years there have been fatal accidents where persons, often young children, have become trapped by the pressure on a pool outlet.

It is important that:-

- ◆ Where possible at least two outlets, spaced a minimum of two metres apart should be provided to the suction line.
- ◆ Outlet covers are secure, kept in good condition and tamper-proof.
- ◆ Outlet covers are visually checked daily. On a regular basis someone should also dive down to carry out a more thorough check.

Consideration should also be given to providing an emergency stop button that shuts down circulation pumps and associated equipment.

The most serious accidents occur with pools with only one outlet. If you have one outlet it **you must** seek the advice of a pool specialist on methods that can reduce the risk of entrapment.

Pool Grilles

Any grille openings in the pool must be designed to prevent limbs and fingers getting trapped.

The size of any aperture should not exceed 8mm. If this dimension is exceeded you should obtain advice on replacing the grilles.

Chemical Safety

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The Control of Substances Hazardous to Health Regulations [COSHH] require an assessment to be undertaken of the hazards created by storing handling and using chemicals.

Section 3 of the main guide provides detailed information on carrying out these assessments.

However the following specific precautions should be taken with swimming pool chemicals:-

- ◆ Chemicals should be kept upright in a clearly marked, cool, well ventilated and locked store. They must **not** be kept in direct sunlight.
- ◆ They must be correctly and clearly labelled.
- ◆ Acids and alkalis must be stored separately.
- ◆ Liquid chemicals must be kept in bunded areas that are clearly marked. This is illustrated in the picture below.

- ◆ Correct personal protective equipment such as gloves, goggles, aprons, boots, respirators, must be provided and staff trained in their use. The picture below shows a respirator and goggles for use in a plant room.



- ◆ Facilities for hand washing should be easily accessible.
- ◆ Where there is no readily available water supply near where the chemicals are being handled, then an eye wash station must be provided in the event of spillage of a chemical.
- ◆ There must be suitable, written procedures in place to deal with spillages and uncontrolled releases of toxic gas
Staff must receive adequate training on the storage handling and use of chemicals
- ◆ Properly designed equipment should be used to transfer liquids from one container to another e.g. manual transfer pump.
- ◆ Disinfectants must not be stored with other chemicals e.g. oils, solvents, cleaning materials etc.
- ◆ Respirators should be provided at or near plant rooms. You need to ensure the cartridges are in date and are frequently replaced. Employees working with chemicals on a regular basis should be provided with their own respirator and trained in its use.

Please note safety data sheets for all chemicals are available from your supplier. These provide information on what harmful effects are possible and the precautions to be taken with each chemical. Written safety information on the chemicals should be displayed near where they are being used and brought to the attention of staff.

Pool Water Treatment

Pollution is introduced almost continuously into a pool mainly from bathers. It is important that this pollution is minimised and dealt with by appropriate water treatment including disinfection.

Problems that may arise if there is inadequate treatment are -

- ◆ Irritation of bathers and poolside staff's skin, eyes and respiratory system.
- ◆ Unclear opaque or cloudy water.

Filtration/Turnover

The main purpose of filtration is to ensure the clarity of the pool is maintained and to aid the removal of bacteria following disinfection. A readily identifiable mark must be clearly visible at the deepest part of the pool, e.g. sump cover.

If the bottom of the deep end is not clearly visible, the pool must be kept closed until clarity is restored.

If sand filters are used, back washing should be carried out when pool is not in use or suitable precautions should be taken to protect bathers from the reduction in pool level.

Turnover is the time taken for a volume of water equivalent to the entire water volume of the pool to pass through all of the pool plant & back to the pool. The shorter the turnover period the more frequently & thoroughly the pool water is being treated.

Pool Water Disinfection

Chemical Testing

Disinfectants can be harmful to bathers if they are not correctly used. It is therefore very important that chemicals levels are checked on a regular basis. When dosing is manual the pool should be tested for chlorine ph levels prior to use, and every 2 hours until closing on heavily used pools, and at least three times a day on lightly used pools. It is strongly recommended that records of these checks are documented in case of queries/complaints. You may wish to use the Swimming Pool Log at the back of this guide for this purpose.

It is very important that the chemicals in the pool are maintained at the correct levels. A guidance sheet at the back of this guide provides recommended levels for different chemicals.

It is also important that any pool test equipment is kept clean and that tablets are in date. Staff must know how to carry out tests and know what action is required where chemicals do not meet recommended levels. A typical chemical test kit is illustrated below.



Micro bacteriological Testing

It is important that bacteriological monitoring is carried out on a regular basis. This is necessary to ensure that the pool is being adequately disinfected and that no person is being exposed to any micro-organisms in the pool. This should be done monthly for premises open all year, for seasonal premises, 3 samples spread over your opening period as well as at the beginning of the season should be sufficient. This type of testing is carried out by specialist laboratories and the Health and Safety Team at Environmental Health can provide you with more information on this matter.

A management system must be in place to ensure the correct action is taken if poor results are received, at the end of the guide there is information on what are satisfactory microbiological results.

Legionella

This is a severe form of pneumonia created by a bacterium which survives and is spread in contaminated water where there are sprays. Poorly managed spa pools, pool water features with spray effects and showers can become contaminated. It is important that all pool features are adequately maintained, backwashing is sufficient and disinfectant levels are adequate. Where showers are provided the water should be heated to at least 60°C and be supplied to heads at 50°C. All shower heads including those on pool features must be descaled regularly.

Spray effects in pools such as fountains should have their heads descaled regularly and be periodically flushed with 5-10mg/hypochlorite.

Section 5 of the main guide provides more information on controlling the risk from Legionella in your workplace.

Supervision and Lifeguard Duties

In 2002, 7 people drowned in England in swimming pool accidents. The correct provision of supervisors can help to prevent such tragedies from occurring.

All pools require some measure of supervision but the arrangements for each pool should be determined by a risk assessment. When deciding on the level of supervision required you should consider the following factors -

- The pool structure - Are there hidden areas or extensive deep waters ?
- Manner of Use: - Bather loads, is the pool used by unaccompanied children, is food, drink or alcohol available ?
- Facilities provided - Slides, inflatables, diving boards, etc.

It is recommended that you use the flowchart at the back of this guide to determine your particular need for supervision.

Remember, constant supervision is the best assurance of pool users' safety.

However, if you are sure having considered all the risks that you do not need constant poolside supervision then the following is essential:-

- ◆ A clear written safety plan (normal operating plan [NOP] and emergency action plan (EAP) displayed in changing rooms, pool entrances and poolside. These should make it clear that the pool is not supervised and provide rules of use. There is a blank NOP and EAP in section 5 which can be adopted for your use.
- ◆ Signs in pool area showing depth of water, especially at the deep and shallow ends.
- ◆ Poolside alarm and a clear and simple notice of how to summon help. The alarm must be checked daily and written records of these checks are strongly recommended.
- ◆ Easily accessible rescue equipment that are suitable for the size and type of pool (poles, throwing ropes and buoyancy aids) with instructions for use. These should be checked daily and maintained in good working order.
- ◆ A member of staff trained in pool rescue, resuscitation techniques and first aid, is designated as on call at all times when the pool is available for use.
- ◆ Maximum bather loads are set. As a guide 3m² per bather is allowed to ensure physical safety.
- ◆ If lone bathing is permitted there must be adequate controls on who is entering.

Number of Lifeguards

Where you do need or wish to provide poolside supervision you should provide a sufficient number of trained lifeguards.

The following table provides guidance on the suggested number of lifeguards for standard rectangular pools with no diving or specialised equipment. This should be increased if there is diving, inflatables, slides, chutes, or large areas of deep water etc.

Approximate Pool Size	Area m ²	Minimum No. of Lifeguards	Recommended No. in busy conditions
25 x 10.00	250	1*	2
25 x 12.5	312	2	2
33.3 x 12.5	416	2	3
50.0 x 20.0	1000	4	6

* If you have one lifeguard you must ensure they have means of calling for assistance in the event of an emergency

Duties of Lifeguards

The key functions of a lifeguard are to:-

- i) Have concentrated observation to anticipate problems in all areas of the pool.
- ii) Communicate effectively and intervene where appropriate to prevent behaviour which is unsafe.
- iii) Effect a rescue/give immediate first aid.
- iv) Be physically fit and mentally alert.
- v) Be adequately trained to ensure competence is maintained (see below).

The employer must ensure that lifeguards are:

- ◆ properly supervised
- ◆ clear about their duties
- ◆ know who is in charge
- ◆ provided with adequate training
- ◆ provided with distinctive clothing and whistles to communicate with bathers and summoning help, note: Red Shorts/Skirt and Yellow Shirts are internationally recognised.
- ◆ given regular breaks.
- ◆ provided with suitable clothing/ suncream to protect them from the sun if they work outside. You should also consider the frequency of breaks and the provision of shade and drinking water.

Qualification and Training for Lifeguards

All lifeguards should hold a **current** qualification from an appropriate organisation e.g. The Royal Life Saving Society UK and an appropriate first aid qualification. Skills and knowledge must be maintained at this level through ongoing and refresher training. Lifeguards should regularly practice emergency procedures and practices to include rescues, first aid, power failure, toxic gas release, use of alarms and other equipment. Records of this training should be kept.

Hire of Pool to Outside Organisations

In 2003 a Local Authority was fined £75,000 following the death of a six year old girl. She drowned because only two lifeguards and two adults were present to supervise 36 children at a birthday party.

This case makes it clear that it is important that where the pool is hired to outside organisations adequate supervision is maintained. If it is agreed that the outside organisation is to provide cover, this should be clearly detailed in the hiring agreement and the pool operator must ensure that such supervision of adequately **trained** persons is provided.

Normal Operating Plan (NOP) and Emergency Action Plan (EAP)

It is **strongly recommended** that you have a written operating procedure to include emergency situations. This is especially important where the pool is unsupervised.

At the end of this Section there is a blank NOP and EAP that can be adopted for your business.

The normal operating plan sets out your pool operation on a daily basis and should include:-

- ◆ details of the pool - depth, size, equipment provided, plan of building, etc,
- ◆ potential risk factors - e.g. diving/slides, water clarity and quality, maximum bather loads,
- ◆ dealing with the public - e.g. poolside rules, controlling admissions,
- ◆ duties of lifeguards - supervision levels, lifeguard training.
- ◆ details of alarm systems and emergency equipment,
- ◆ first aid supplies and training,
- ◆ conditions of hire to outside organisations,
- ◆ general information, e.g. key holders, maintenance arrangements, cleaning schedules/procedures, call out procedures, etc.

The emergency action plan provides details of the action taken should something go wrong.

It usually covers -

- ◆ overcrowding,
- ◆ disorderly behaviour,
- ◆ lack of water clarity,
- ◆ outbreak of fire,
- ◆ lighting/structural failure,
- ◆ emission of gases,
- ◆ injury to a bather.

This plan should provide details of how to evacuate the pool and the building.

Staff must be trained in the NOP and EAP and where the pool is hired out to outside organisations, plans must be made known to and understood by them.

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Normal Operating Plan and Emergency Action Plan

Name of Pool:

.....
.....

Date:

.....

Person responsible
for drawing up plan:

.....

Pool Dimensions:

.....

Depth:

.....

Review date:

.....

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Dealing with the Public

(Detail what arrangements are in place for communicating safety messages to the public.....

Method for controlling access to the pool:

Maximum Bathing Load

The total number of persons permitted in the pool is:

Bather access to the pool will be controlled by

When maximum bather load is reached the following action will be taken:

First Aid Supplies

The First Aid kits are located:

The following first aid equipment is also provided:

The person responsible for maintaining first aid equipment is:

Accident Reporting

All accidents/incidents should be recorded. The accident book is kept:

Any major incident/occurrence must be reported to the Incident Control Centre under the requirements of:

RIDDOR. Tel: 0845 3009923

Fax: 0845 300 9924

Email: riddor@natbrit.com

Lifeguards' Duties and Responsibilities

The main tasks of the Lifeguard are:

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.....

All lifeguards will hold a current lifeguarding qualification.

The following number of Lifeguards will be on duty:

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.....

Lifeguard Positions:

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.....

.....

The Lifeguards will wear the following distinctive clothing:

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.....

Systems of Work

The following are the lines of supervision for the pool:

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.....

Times

Lifeguard Maximum Poolside Times:

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Call Out Procedure

Contact telephone numbers:

.....

.....

Operational Systems

The following procedure is to be followed when the pool is closed:

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The methods used for preventing access are

.....

.....

Alarm Systems and Emergency Rescue Equipment

The following emergency rescue equipment is provided at the stated locations:

1.
2.
3.
4.
5.

An alarm is provided at:

.....

.....

This must be tested:

.....

.....

Alarm Procedure

On hearing the alarm:

.....
.....
.....
.....

Alarms are also provided at:

The nearest telephone is:

Refer to the EAP for detailed information on what action should be taken in an emergency.

Fire Extinguisher

Fire extinguishers are provided at the following locations:

.....
.....
.....
.....
.....

Maintenance

It is important all emergency equipment/alarms are maintained in a safe condition. If something becomes damaged/unsafe, or does not work correctly, then it should be immediately reported.

Maintenance checks will be made every by

Detailed Work Instructions

Cleaning Duties:

.....
.....

Emergency Action Plan

This document details what action should be taken in emergency situations.

Overcrowding

The maximum bather load for the pool is: If the maximum bather load is reached the following procedure will be taken to control admissions:

.....

Disorderly Behaviour

In the event of a bather disobeying house rules, the following procedure should be followed:

.....
.....
.....

Water Clarity

The water clarity must be sufficient at all times to enable you to see all points of the pool and bathers. If the pool clarity becomes poor then the pool must be cleared of bathers and kept closed until the clarity is restored.

Under no circumstances should the pool remain open when there is poor pool clarity

Outbreak of Fire

If there is an outbreak of fire and an alarm sounds, the following procedure should be followed:-

.....
.....
.....

Lighting Failure

If the pool lighting should fail, Lifeguards should instruct and assist bathers to leave the pool and, if necessary, the building.

Bathers should not return to the building until normal lighting is restored. Emergency lighting is provided at the following locations:

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.....
.....

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Structural Failure/Emission of Toxic Gases

Remove public from the area where the damage is and evacuate as necessary, call emergency services as necessary. Ensure that the following procedure is also followed:

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Serious Injury to Bather

Sound Pool Alarm if applicable.

The following Procedure must be taken:

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Note: Spinal Injury If this is suspected, appropriate handling must be carried out to ensure the risk of further injury is minimised.

Discovery of Casualty in Water

Guidelines for Lifeguards in cases of emergencies in a pool.

If you find a casualty you should:

.....

.....

.....

Note: In the event of an emergency it is important to keep full details of the incident.

Diarrhoea and Vomiting

The pool should be kept clear of excrement and vomit. If either are found in the pool, the following action must be taken:

.....

.....

.....

.....

Swimming Pool - Daily Checklist

Name of Pool: _____

Person Completing Checklist: _____

Date: Mon / / to Sun / /

Item	Satisfactory Y/N							Comments
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
Access around pool safe, e.g. paving in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Steps into pool secure in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pool Tank Safe, e.g. No loose tiles, fitting secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Lifesaving equipment in place and in good working order	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All safety signs visible, in place and in good condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Poolside alarm tested and working correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chemical store secure and clearly marked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Different chemicals segregated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
PPE in good condition in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pool test kit clean and intact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pool tests carried out and documented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
First aid kit in place and fully stocked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Electrical Appliances in good condition and RCD * tested	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pool outlet covers in place and intact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Slides - visual inspection done, signage displayed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diving boards visual inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Measures in place to prevent unauthorised access to pool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Changing rooms clean and in good order	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

* RCD - Residual Current Device

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Chemical

SODIUM HYPOCHLORITE & CALCIUM HYPOCHLORITE

Free Chlorine	- 1.5 - 2.0 mg/l
Combined Chlorine	- Should be less than the free (ideally half or less)
pH Value	- 7.2 - 7.8 (however 7.2 - 7.4 should be the target)

CHLORINATED ISOCYANURATES

Free Chlorine	- 2.5 - 5.0 mg/l
pH Value	- 7.2 - 7.8 (The lower the pH the better the disinfection)
Cyanuric Acid Levels	- These should be tested once a week until levels are consistent when this can be increased to monthly (Recommend levels below 200mg/l (ideal range 50 - 100mg/l)

Please note: Adding 60 mg/l of Cyanuric Acid to an outdoor pool using hypochlorite at the start of the season will help to stabilise your free chlorine levels, especially when there is strong sunlight.

BROMOCHLORO - DIMETHYLHYDANTOIN (BCDMH)

Total Bromine	- 4.0 - 6.0mg/l
pH Levels	- 7.2 - 7.8

It is important that these levels are strictly adhered to as a number of bathers exposed to this chemical can suffer skin irritation and rashes.

SODIUM BROMIDE PLUS HYPOCHLORITE

Total Bromine	- 1.5 3.5mg/l
pH Value	- 7.8 - 8.2
Total Alkalinity	- 100mg/l

ALKALINITY

Acceptable Range	- 75 - 200mg/l
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Alkalinity should be measured weekly using alkalinity test tablets.

TOTAL DISSOLVED SOLIDS (TDS)

This is the sum of the weight of soluble material in the pool. TDS levels increase with addition of pool chemicals, bather pollution etc.

The pool water is compared with your source water (e.g. mains) using an electronic meter. TDS should not be allowed to increase more than your source water by 1000mg/l, up to a maximum of 3000mg/l.

Dilution by replacing up to 30 litres of water per bather per day should keep TDS to an acceptable level.

CALCIUM HARDNESS

This is the measure of the calcium salts in the water. Recommended levels are between 75 & 150mg/l, below 40mg/l the water can be corrosive to the fabric of the pool plant, above 150mg/l can lead to scale deposits. It should be checked weekly using appropriate tablets.

Microbiological Levels

Satisfactory Levels

Colony Count (37°C)	- No more than 10 cfu/ml.
Total Coliforms	- Absent in 100ml.
Escherichia coli	- Absent in 100ml.
Pseudomonas aeruginosa	- Absent in 100ml for all spas and whirlpools

Do you require Poolside Supervision?

Use the following Flowchart to determine if you need a Lifeguard at your pool.



