



SIGNHILLS ACADEMY

Pool Technical Operating Procedure (PTOP)

Approved by	Premises, Health and Safety Committee of the Governing Body
Dated	Spring 2026 (reviewed May 2026)
Next review due	Spring 2027
Author	Steve Carr, Headteacher

This PTO must be read alongside the Pool Safety Operating Procedures (NOP/EAP) and the Swimming Pool Risk Assessment. The PTO covers the technical operation of the pool plant; the NOP/EAP covers operational safety and emergency procedures.

1. Measuring, Monitoring and Improvement

The effectiveness of the water treatment plant and management system is measured, monitored and analysed regularly to identify opportunities for improvement and to ensure compliance with the PWTAG Code of Practice (current edition). Monitoring is carried out through:

- Bacteriological and microbiological monitoring;
- Chemical monitoring (daily manual testing and automated dosing system readings);
- Plant and treatment systems monitoring;
- Feedback from regulatory authorities and pool users;
- Actions taken to ensure compliance with this PTOP;
- Corrective and preventive actions following any incident or anomalous result;
- Responding to incidents and emergencies.

2. Management Systems

2.1 Academy Staff

The Headteacher is responsible for writing and reviewing this PTOP, which is reviewed annually by the Premises, Health and Safety Committee of the Governing Body, and whenever major adaptations are made or a notable incident occurs affecting pool water safety.

The Caretaker is responsible for the day-to-day implementation of this PTOP.

Both the Headteacher and Caretaker hold pool plant qualifications (see Annexe C). At least one of them is either on-site or on-call during all hours of pool operation. 'On-call' means available by telephone to provide technical advice and, where necessary, to attend site. Where neither the Headteacher nor the Caretaker is on-site, the on-call person must be contactable by telephone throughout the hire or operation period.

2.2 Pool Hirers – Designated Person

Each pool hirer must have a Designated Person on-site throughout every hire session. The Designated Person must:

- Hold a current PWTAG Pool Plant Foundation certificate (or equivalent accepted qualification);
- Have received on-site familiarisation from the Caretaker or Headteacher before their first session;
- Be capable of testing pool water quality and interpreting results against the standards in Section 4.3;
- Be familiar with the operation of the facility, the PTOP (including Annexe E), and the pool emergency action plan.

The Designated Person must carry out a water quality test before every hire session and must not commence the session if parameters are outside the acceptable range. Any concerns or issues must be reported to the Caretaker or Headteacher via the Pool Chemicals WhatsApp group (see Section 8) or by telephone.

3. Water Quality and Treatment

This pool operates water treatment continuously. The treatment system complies with the PWTAG Code of Practice.

3.1 Primary Disinfection

Calcium Hypochlorite Granules are used as the primary disinfectant. The dosing system monitors free chlorine continuously and doses automatically. For at least the first manual test each day, the results are compared to the automated dosing display. If the difference in free chlorine exceeds 0.25 mg/l, the controller is recalibrated. If recalibration does not resolve the discrepancy, the pool must be closed and Grayfox must be contacted for a full inspection.

3.2 Secondary Disinfection

This pool uses UV (medium pressure, capable of 60 mJ/cm² to achieve a 3-log (99.9%) reduction in viable *Cryptosporidium* oocysts applied to the full flow) as secondary disinfection to limit combined chlorine and to reduce the risk from *Cryptosporidium*. UV systems must be maintained and monitored to ensure effective dose delivery at all times.

3.3 pH Balance

Sodium Hydrogen Sulphate is used to lower pH. pH is monitored and dosed automatically. For at least the first manual test each day, results are compared to the automated dosing display. If the difference in pH exceeds 0.2, the controller is recalibrated. If recalibration does not resolve the discrepancy, the pool must be closed and Grayfox contacted.

3.4 Dilution with Fresh Water

Pool water is replaced with fresh mains water as part of the twice-weekly backwashing regime, replacing approximately 5% of the pool volume at each backwash. Dilution rates are monitored and adjusted according to usage in accordance with PWTAG guidance.

3.5 Coagulant / Clarifier

Polyaluminium Chloride (PAC) / Cationic Polyelectrolyte is dosed automatically via a constant dosing system. Adequate contact time between coagulant injection and the filter must be maintained (minimum 10 seconds at no more than 1.5 m/s flow velocity) to allow effective flocculation in line with PWTAG requirements.

4. Water Sampling and Quality Standards

Regular manual testing ensures that the correct chemical balance is maintained at all times.

4.1 Free Chlorine Testing

Free chlorine is tested manually at the start of each day and before each hire session. The following routine is used:

- The sample is taken from the same location each time: at a depth of approximately 30 cm, halfway along the long side of the pool furthest from the school field.
- The test tube is rinsed with pool water before taking the sample.
- If a result is unsatisfactory, the test is repeated (up to three times).
- The pool is closed immediately if there is chemical or physical evidence of unsatisfactory disinfection.

4.2 Water Clarity

Pool water clarity is visually checked at the start of each hire period and at any point where concerns are raised. The pool is closed immediately if clarity is insufficient to allow pool staff to see the pool bottom clearly across its full area.

4.3 Water Quality Standards

Parameter	Target	Pool Closure Threshold	Notes
Free chlorine	1–3 mg/l	≤0.75 mg/l or ≥10 mg/l	
Combined chlorine	<50% of free chlorine		High levels indicate bather pollution or inadequate disinfection. Ventilate pool hall and investigate cause.
pH	7.2–7.8	≤7.0 or ≥8.4	
TDS	≤1000 mg/l above source water; max 3000 mg/l		
Alkalinity	80–200 mg/l		Tested fortnightly by Grayfox.
Calcium hardness	80–300 mg/l		Tested fortnightly by Grayfox.
Water temperature	31°C		Upper end of PWTAG children's teaching range (29–31°C). Pool air temperature maintained at approximately 1°C above water temperature.

The following test equipment must be maintained in good working order:

- Electronic Comparator;
- 10 ml test tubes;
- Pool test tablets (DPD 1 and 2, Phenol Red, Total Alkalinity and Calcium Hardness);
- Pool plant log;
- Thermometer;
- Total Dissolved Solids (TDS) meter.

4.3.1 Daily Readings (Caretaker or Designated Person)

- Pool air temperature;
- Relative humidity;
- Pool water temperature;
- Pool pH level;
- Pool chlorine residuals (free chlorine, combined chlorine and total chlorine).

4.3.2 Fortnightly Readings (Grayfox – external contractor)

- Alkalinity;
- Calcium hardness;
- Total dissolved solids;
- Balanced water test (Langelier Saturation Index).

4.4 Independent Microbiological Testing

Second Element (external contractor) takes samples of pool water monthly and arranges laboratory microbiological testing. Tests include:

- Aerobic colony counts / total viable count (safe: ≤ 10 cfu per ml);
- Total coliforms (absent in 100 ml);
- Escherichia coli (absent in 100 ml);
- Pseudomonas aeruginosa (≤ 10 per 100 ml);
- pH, total chlorine and free chlorine.

The pool will be closed if microbiological testing raises concern. Specialist advice must be sought and the issue fully resolved before the pool reopens.

5. Cleaning

5.1 Pool Area

The poolside is swilled with pool water and the water is cleared down the surface drains after each school or hire session.

5.2 Changing Rooms

All floors in the changing rooms, toilets and shower areas are thoroughly cleaned each day. Jangro Hard Surface Cleaner is used on changing room and shower floors; floors are thoroughly rinsed to ensure cleaning materials do not enter the pool water. Jangro All-Purpose Cleaner and Diversey Room Care R6 Disinfectant are used on surfaces. Dymason Peach Toilet Cleaner is used in toilet areas. All products are stored in the assisted changing room secured cupboard (see Annexe D).

5.3 Pool Bottom

The pool bottom is cleaned by suction on a monthly basis and whenever debris is reported. During the diarrhoea contamination procedure, the pool bottom must be vacuumed as part of the recovery process.

6. Maintenance Routines

6.1 Plant Rooms

The plant room consists of two secure areas (the Main Plant Room and the Auto-dosing Controller Room) which are not accessible to unauthorised persons. They are not used for general storage. Only the chemicals specified in Annexe D are stored in these rooms, and they are stored in separate locations to ensure adequate separation of incompatible substances. Safety Data Sheets (SDS) are available for all chemicals in the plant room and are accessible to the Caretaker, Headteacher and, in an emergency, to the emergency services.

6.2 Planned Maintenance Programme

Plant is inspected and maintained in accordance with a planned maintenance programme. The main plant systems are:

- Gas boiler;
- Circulation pump;
- Filtration units (two main filters with polyester filtration media);
- Air Handling Unit;
- Automated Dosing System;
- UV System;
- Electronic Comparator.

6.3 Inlets and Outlets

Inlets and outlets are inspected visually before each session. A more detailed inspection is carried out once per half-term, checking for obstruction, impact damage, vandalism and correct positioning. If any outlet is damaged or missing, swimming must be suspended immediately and Grayfox contacted. All outlets must comply with BS EN 13451-3.

6.4 Filters and Strainers

- The two main filters (polyester filtration media) are backwashed twice-weekly until the water runs clear.
- The pump strainer basket is changed and cleaned twice-weekly.
- The two skimmer baskets are emptied twice-weekly.
- The automated dosing pre-analysis filter is cleaned at least three times per week and whenever the flow rate drops.

Additional cleaning takes place as required.

6.5 Personal Protective Equipment (PPE)

The Headteacher and Caretaker take advice from chemical suppliers on the PPE required for each task and ensure it is provided, maintained and replaced as necessary. Required PPE includes:

- Chemical-resistant gloves;
- Protective workwear / overalls;
- Chemical-resistant goggles;
- Protective footwear;
- SR100 half-mask respirator (for tank-filling and chemical dosing operations). Bi-yearly mask-fit test; records held in school.

7. Delivery and Storage of Chemicals

7.1 Delivery

Chemical stocks are monitored to ensure that no more than 3 × 25 kg containers of any chemical are stored on site at one time. Only the Headteacher or Caretaker may be involved in the handling and storage of pool chemicals. Deliveries proceed only when the Caretaker is available to receive and check the materials. Chemical containers are delivered to the storage area by the supplier via sack barrow. They must not be left unattended, must be kept upright and must not be rolled.

7.2 Chemical Storage

Chemical stores are kept clean, dry and protected from sunlight, separated from hot pipework or plant. Stores have appropriate warning signage and are secure, accessible only to the Headteacher and Caretaker. Chemicals are stored in their original, labelled containers. Incompatible chemicals are stored in entirely separate locked rooms in line with SDS guidance.

Chemical	Location	Container / Quantity	Notes
Calcium Hypochlorite Granules	Auto-dosing Controller Room	25 kg containers; max 3 on site	Primary disinfectant. Oxidising agent – store away from acidic chemicals.
Sodium Hydrogen Sulphate (pH minus)	Main Plant Room	25 kg containers; max 3 on site	Acidic – stored separately from Calcium Hypochlorite at all times.
Sodium Carbonate (pH plus)	Main Plant Room	5 kg container	
Polyaluminium Chloride / Cationic Polyelectrolyte (Clarifier / Coagulant)	Main Plant Room	1 litre	Dosed automatically via constant dosing system.
Water testing chemicals	Main Plant Room	Small quantities	DPD 1 & 2, Phenol Red, Total Alkalinity, Calcium Hardness tablets.

7.3 Hand Dosing

Hand dosing in normal operation is not permitted at this pool except under the explicit written permission of the Headteacher.

7.4 Chemical Dosing Operations

Written tank-filling procedures are provided in Annexe B. Chemicals are always added to water; water is never added to chemicals. Non-liquid chemicals are kept dry until dissolved in water. The normal dosing frequency is:

- Calcium Hypochlorite Granules: 2–3 times per week;
- Sodium Hydrogen Sulphate (pH minus): as required by the automated system.

The chemical dosing system is interlinked with the circulation pumps. Dosing stops automatically if there is pump failure or significant loss of pumping rate. The system is designed to fail to safety.

7.5 Chemical Line Safety

All chemical pipework, suction lines, delivery lines and tanks are marked to identify the contents and direction of flow. Disinfectant and pH dosing systems are kept separate. Dosing sets are separated in individual bunds.

7.6 Chemical Spillage

Any spillage must be cleared immediately using the safe method agreed between the chemical supplier and the Academy (see Annexe D for SDS details and spill procedures). Spill kits are kept in the plant room. The Caretaker or Headteacher must send a message to the Pool Chemicals WhatsApp group immediately following any spillage, stating what occurred and what action was taken.

8. Communications – Pool Chemicals WhatsApp Group

A WhatsApp group named 'Pool Chemicals' is maintained with the following members: the Headteacher, the Caretaker, and the Business Manager. This group is used for all communications relating to pool chemical operations, including:

- Notification before and after tank-filling operations;
- Notification of any chemical spillage or incident;
- Notification of any plant fault or anomalous reading;
- Notification by the Designated Person (during hire sessions) of any pool plant issue;
- Any other matter requiring the attention of more than one of the group members.

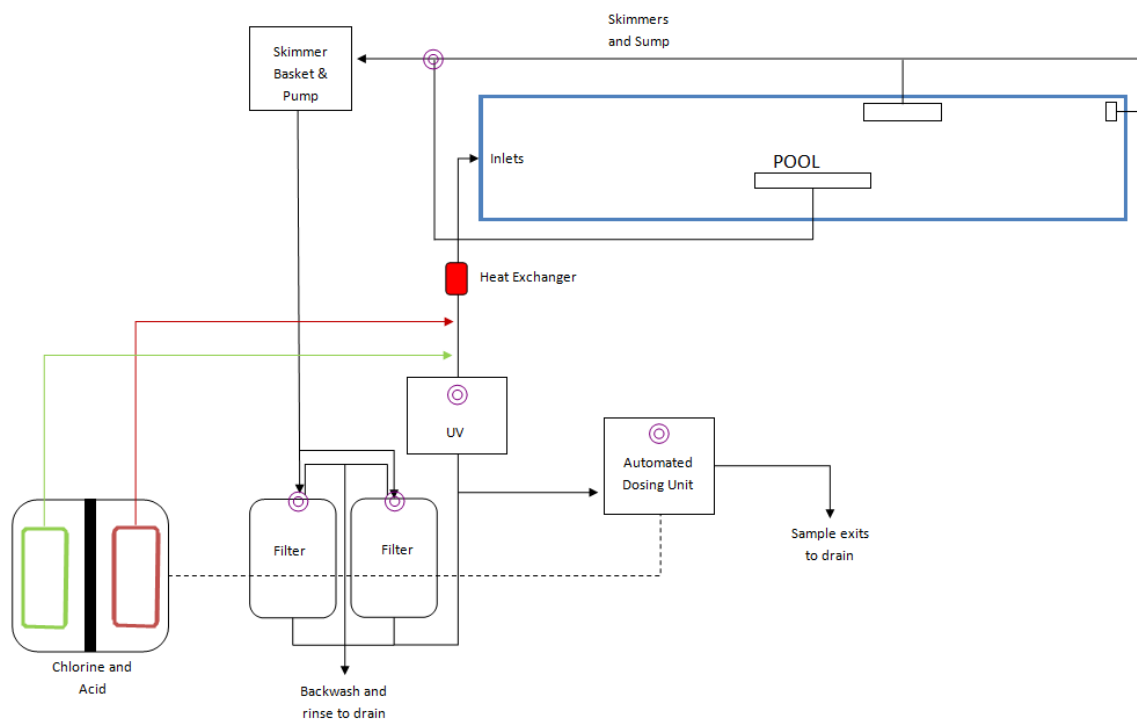
Messages to the Pool Chemicals group serve as the formal record of notification for tank-filling and chemical incident purposes. The Caretaker or Headteacher must send a message to the group before commencing any tank-filling operation, and again on completion.

9. Records and Logs

The following records are maintained by identified persons and retained by the Academy Office:

Record / Log	Responsible Person
Pool water quality log (daily and pre-session readings)	Caretaker / Designated Person
Bacteriological / microbiological analysis	Second Element (external contractor)
Fortnightly full water analysis	Grayfox (external contractor)
Incident log	Designated Person / Headteacher
Automatic monitoring calibration	Caretaker
Monthly safety equipment and PPE inspection	Caretaker
Staff training and qualifications	Business Manager
Pool Chemicals WhatsApp group notifications	Caretaker / Headteacher

Annexe A – Pool Schematic



Annexe B – Tank Filling Procedures

Tank-filling operations may only be carried out by the Headteacher or Caretaker. The following procedure must be followed in full on each occasion.

Before starting, send a message to the Pool Chemicals WhatsApp group stating that tank-filling is commencing.

Normal Tank Filling (Calcium Hypochlorite Granules or Sodium Hydrogen Sulphate)

- Notify the Pool Chemicals WhatsApp group before starting.
- Put on full PPE: workwear, chemical-resistant gloves, goggles and SR100 half-mask respirator.
- Prop open the storage room door.
- For Calcium Hypochlorite: ensure the agitator is not operating before opening the tank.
- Use a hosepipe to raise the level of the tank by 50 litres. The hosepipe must not be submerged in the liquid.
- Rinse the hosepipe in the pool after use.
- Add the dry chemical: 1.5 kg Calcium Hypochlorite Granules or 3 kg Sodium Hydrogen Sulphate (pH minus).
- Replace the tank lid.
- Check for any spillage; clean up immediately if found.
- For Calcium Hypochlorite: switch on the agitator. For Sodium Hydrogen Sulphate: agitate manually.
- Notify the Pool Chemicals WhatsApp group that the operation is complete.

Adding Water Only (Chlorine Level Too Low – No Chemical Addition)

This procedure applies when the dosing system is repeatedly attempting to dose but chlorine levels remain low, indicating insufficient solution in the chlorine tank. Water only may be added; no chemical may be added.

- Notify the Pool Chemicals WhatsApp group before starting.
- Put on PPE: chemical-resistant gloves, goggles and overalls. Arms and legs must be covered.
- Prop open the Auto-dosing Controller Room door.
- Ensure the agitator is not operating (listen for the whirring sound from the pump on top of the tank). Switch off at the wall timer if needed.
- Remove the black tank lid.
- Use the hosepipe from the Main Plant Room to raise the tank level by 50 litres. The hosepipe must not be submerged in the liquid.
- Rinse the hosepipe in the pool after use.
- Replace the tank lid.
- Switch on the agitator if needed.
- Open the white bleed-valve on the side of the dosing pump fully, but do not completely remove the valve end. Allow several clicks of the pump. Tighten the bleed valve.
- Check whether chlorine levels begin to rise.
- Notify the Pool Chemicals WhatsApp group that the operation is complete.

Annexe C – Staff Qualifications

Name	Role	Qualification	Valid Until	Notes
Steve Carr	Headteacher	Pool Plant Operator (PWTAG SPTO)	30 May 2027	
Tina Corringham	Caretaker	Pool Plant Foundation	[INSERT RENEWAL DATE]	Renewed [INSERT DATE]. Previous certificate expired 18 November 2024.

All qualifications must be renewed before their expiry date. Records are held by the Business Manager. The Headteacher must ensure that at least one qualified pool plant operator is always available on-site or on-call during pool operation.

Annexe D – Chemical Storage, SDS and COSHH

Safety Data Sheets (SDS) are held for all substances listed below and are accessible to the Caretaker, Headteacher, Business Manager and, in an emergency, the emergency services. Individual COSHH assessments have been completed for all pool and cleaning chemicals.

Auto-dosing Controller Room

- Calcium Hypochlorite Granules – 25 kg containers (max 3 on site). Oxidising agent. Keep dry, away from heat and acidic substances.

Main Plant Room (chemicals stored away from the boiler, circulation pump and air-handling unit)

- Sodium Hydrogen Sulphate (pH minus) – 25 kg containers (max 3 on site). Acidic. Store separately from Calcium Hypochlorite at all times.
- Sodium Carbonate (pH plus) – 5 kg container.
- Cationic Polyelectrolyte (Clarifier / Coagulant) – 1 litre.
- Water testing chemicals – small quantities.

Assisted Changing Room (secured cupboard)

- Jangro Hard Surface Cleaner – 5 kg container.
- Jangro All-Purpose Cleaner – 5 kg container.
- Diversey Room Care R6 Disinfectant – 1 litre.
- Dymason Peach Toilet Cleaner – 1 litre.

Pool chemicals which, if combined, would cause the release of chlorine gas (principally the oxidising Calcium Hypochlorite Granules and the acidic Sodium Hydrogen Sulphate) are stored in entirely separate locked rooms and must never be handled simultaneously.

Spill kits are maintained in the Main Plant Room. Spillage procedures are agreed with each chemical supplier and are recorded in the individual SDS. Any spillage must be reported immediately to the Pool Chemicals WhatsApp group.

Annexe E – Designated Person Guide

Whilst the Academy team endeavours to ensure that the system remains fully operational at all times, issues can arise during hire sessions. The Designated Person is responsible for managing common plant issues in accordance with this guide. The procedures may only be carried out by a person holding a current PWTAG Pool Plant Foundation certificate who has received on-site familiarisation from the Caretaker or Headteacher.

Any concern or issue not covered by this guide must be reported immediately to the Caretaker or Headteacher via the Pool Chemicals WhatsApp group or by telephone. If neither is reachable, the session must be suspended.

Auto-dosing System Offline

If the test probe flow rate drops, the float sinks below the sensor and the dosing system turns off. The screen displays 'OFF'. This is typically caused by scale build-up on the pre-filter. Spare clean filters (with rubber washers) are in the bottom drawer of the storage unit in the Main Plant Room.

To change the filter:

- Close the two red valves either side of the filter and probes.
- Wait until the display reads 'OFF'.
- Unscrew the blue collar on the filter container.
- Pour the water into the bucket below the panel.
- Remove the filter (including the 2 rubber washers) and set aside for cleaning.
- Seat the replacement filter (with its 2 end-washers in place) in the filter container.
- Reattach using the blue collar, taking care with the black washer.
- Open the LEFT red valve to flood the chamber.
- Check for leaks. If leaking, close the red valve before unscrewing and refitting the blue collar. Open the LEFT red valve again to flood the chamber.
- Open the RIGHT red valve.
- Once any air has cleared the system, the float should align with the sensor. The display will show 'DELAY' before displaying chlorine and pH readings.
- Notify the Caretaker or Headteacher via the Pool Chemicals WhatsApp group.

Chlorine Reading Too Low

If the dosing pump is repeatedly clicking and the pipe is twitching but chlorine levels remain very low, the solution level in the chlorine tank is likely too low. Water only may be added – no chemical may be added by the Designated Person.

- Notify the Caretaker or Headteacher via the Pool Chemicals WhatsApp group before starting.
- Put on PPE: chemical-resistant gloves, goggles. Arms and legs must be covered (overalls are available in the Main Plant Room).
- Prop open the Auto-dosing Controller Room door.
- Ensure the agitator is not operating. Switch off at the wall timer if needed.
- Remove the black tank lid.
- Use the hosepipe from the Main Plant Room to raise the level of the tank by 50 litres. The hosepipe must not be submerged in the liquid.
- Rinse the hosepipe in the pool after use.
- Replace the tank lid.
- Switch on the agitator if needed.
- Open the white bleed-valve on the side of the dosing pump fully, but do not completely remove the valve end. Allow several clicks of the pump. Tighten the bleed valve.
- Check whether chlorine levels begin to rise.
- Notify the Caretaker or Headteacher via the Pool Chemicals WhatsApp group on completion.

Document title	Pool Technical Operating Procedure (PTOP)
Author	Steve Carr, Headteacher
Reviewed	May 2026
Next review due	Spring 2027
Approved by	Premises, Health and Safety Committee of the Governing Body