



POOL OPERATIONS MANUAL

Pool and Hot Tub Operations Manual

Pools R Us

Edmonton, Alberta

Effective Date: February 23, 2026

Revision: 1.0

1. Introduction

1.1 Purpose

This manual establishes operational standards and procedures for all pool and hot tub facilities managed by Pools R Us in accordance with Alberta Health Services (AHS) regulations, specifically the Public Swimming Pools Regulation (AR 204/2014) and the Pool Standards (July 2014, amended January 2018).

1.2 Scope

This manual applies to all public swimming pools, hot tubs (whirlpools), and associated facilities operated under Pools R Us management in Edmonton and surrounding areas.

1.3 Regulatory Compliance

All operations must comply with:

- Public Swimming Pools Regulation (AR 204/2014)
- Pool Standards, July 2014 (amended January 2018)
- Alberta Health Services directives and approvals
- Municipal bylaws and safety codes

1.4 Regulatory Authority

Alberta Health Services, Environmental Public Health (EPH) is the regulatory authority responsible for inspections, approvals, and enforcement. Facilities are subject to routine inspections and must maintain all required permits[1].

2. Operator Certification and Responsibilities

2.1 Operator Certification Requirements

All pool operators must hold a valid Swimming Pool Operator Level 1 certification from an Alberta Health approved training organization[2]. Approved organizations include:

- Alberta Association of Recreation Facility Personnel (AARFP)
- Lifesaving Society Alberta
- Pool & Hot Tub Council of Canada
- Other organizations approved by the Minister of Health

2.2 Operator Responsibilities

The designated pool operator must:

- Maintain current certification credentials
- Ensure daily testing and monitoring of water quality
- Maintain accurate and complete records
- Perform routine maintenance and equipment checks
- Respond to water quality incidents promptly
- Report issues to Alberta Health Services as required
- Supervise and train staff on pool operations
- Ensure compliance with all policies and procedures

2.3 Owner Responsibilities

The facility owner or owner's agent must:

- Reside in Alberta
- Have care and control of pool operations
- Employ certified pool operators

- Ensure facilities are equipped, operated, and maintained in compliance with regulations
- Obtain required approvals before changing operating procedures or making alterations
- Maintain valid operating permits

3. Water Quality Standards

3.1 Chemical Parameters

All pools and hot tubs must maintain water quality within the following parameters[8]:

Parameter	Minimum	Maximum	Notes
Free Chlorine (pools $\leq 30^{\circ}\text{C}$)	1.0 ppm	None	Standard pools
Free Chlorine (pools $> 30^{\circ}\text{C}$)	2.0 ppm	None	Hot tubs, warm pools
Combined Chlorine	N/A	Lowest possible	Maintain minimal levels
pH	6.8	7.6	Critical for disinfection
Total Alkalinity	60 mg/L	180 mg/L	Buffer for pH stability
Water Temperature (pool)	N/A	40°C	Maximum when in use
Water Temperature (hot tub)	N/A	40°C	Must have regulator
ORP (if used)	770 mV	None	At pH ≤ 7.3

Table 1: Alberta Health Services Water Quality Standards

3.2 Water Clarity

Water must be clear enough to see all parts of the pool bottom, including main drains, from the pool deck. If clarity is compromised, the pool must be closed until corrected[8].

3.3 Microbiological Safety

Water must be microbiologically safe for use. Weekly water samples must be submitted to the Provincial Laboratory of Public Health for bacteriological testing[8].

4. Daily Testing and Monitoring

4.1 Testing Frequency

The following tests must be conducted and recorded once daily[8]:

Test	Frequency
Free Chlorine	Once daily
Combined Chlorine	Once daily
pH	Once daily
Water Temperature	Once daily
Water Clarity	Once daily
Total Alkalinity	At least once per week
ORP (if applicable)	Continuous (automated system)

Table 2: Testing Frequency Requirements

4.2 Testing Equipment

- Use calibrated test kits (DPD test kits recommended)
- Ensure test reagents are not expired
- Calibrate electronic equipment regularly
- Replace test strips and reagents as needed
- Store testing equipment properly (cool, dry location)

4.3 Testing Procedures

Free Chlorine and Combined Chlorine Testing:

1. Collect water sample at elbow depth, away from return jets
2. Use clean sample container or test cell
3. Add appropriate reagents according to manufacturer instructions
4. Read results immediately (within specified time frame)

5. Record results in daily log

pH Testing:

1. Collect water sample at elbow depth
2. Add phenol red indicator or use electronic pH meter
3. Compare color to chart or read digital value
4. Record results in daily log

4.4 Responding to Out-of-Range Results

If any parameter is outside acceptable range:

1. Close the pool or hot tub to bathers immediately
2. Identify and correct the problem
3. Adjust chemicals as needed
4. Retest to confirm values are within range
5. Reopen facility only when all parameters meet standards
6. Document incident and corrective actions in daily log

5. Record Keeping Requirements

5.1 Daily Operating Log

The daily log must include[8]:

- Date and time of each test
- Free chlorine residual (ppm)
- Combined chlorine residual (ppm)
- pH level
- Water temperature
- Water clarity observations
- Total alkalinity (weekly minimum)
- Microbiological test results
- Quantities and dates of all chemicals added
- Equipment maintenance performed
- Any incidents or problems encountered
- Corrective actions taken
- Operator signature

5.2 Record Retention

All records must be:

- Maintained for a minimum of two years
- Available for inspection by Alberta Health Services upon request
- Kept on-site or readily accessible
- Legible and complete
- Signed by the operator performing tests

5.3 Additional Records

Maintain records of:

- Operator certification credentials
- Equipment maintenance and repairs
- Chemical deliveries and inventory
- Training provided to staff
- Incident reports and responses
- Facility inspections by AHS
- Operating permits and approvals

6. Chemical Safety and Handling

6.1 Chemical Storage

- Store chemicals in a cool, dry, well-ventilated area
- Keep acids and bases separated
- Store chlorine away from incompatible chemicals
- Keep containers tightly sealed when not in use
- Store chemicals in original labeled containers
- Maintain adequate ventilation in storage areas
- Restrict access to authorized personnel only
- Post appropriate safety signage

6.2 Chemical Handling Procedures

1. Always wear appropriate personal protective equipment (PPE):
 - Safety goggles or face shield
 - Chemical-resistant gloves
 - Long sleeves and pants

- Closed-toe shoes
2. Read and follow manufacturer's instructions and Safety Data Sheets (SDS)
 3. Never mix different chemicals together
 4. Add chemicals to water, never water to chemicals
 5. Use clean, dedicated measuring devices for each chemical
 6. Avoid breathing chemical vapors or dust
 7. Wash hands thoroughly after handling chemicals

6.3 Emergency Response

In case of chemical spill or exposure:

1. Evacuate the area if necessary
2. Alert other staff members
3. For skin contact: Rinse affected area with water for 15 minutes
4. For eye contact: Flush eyes with water for 15 minutes
5. For inhalation: Move to fresh air immediately
6. Seek medical attention for serious exposures
7. Contain small spills with absorbent material
8. Contact emergency services (911) for major spills or injuries
9. Report incident to supervisor and document in incident log

6.4 Safety Data Sheets (SDS)

- Maintain current SDS for all chemicals used
- Keep SDS readily accessible to all staff
- Review SDS before using any new chemical
- Train staff on SDS contents and location

7. Filtration and Circulation Systems

7.1 System Operation

The filtration and circulation systems must[8]:

- Operate continuously during pool operating hours
- Be maintained according to manufacturer specifications
- Provide bacteriologically and chemically safe water
- Meet design flow rates

- Be shut down only for maintenance, repairs, or competitions (with approval)

7.2 Filter Maintenance

Backwashing Procedures:

1. Note pressure gauge reading before backwashing
2. Turn off pump
3. Set valve to backwash position
4. Turn on pump and backwash until water runs clear (typically 3-5 minutes)
5. Turn off pump
6. Set valve to rinse position
7. Turn on pump and rinse for 30-60 seconds
8. Turn off pump
9. Return valve to filter position
10. Turn on pump and resume normal operation
11. Record backwash in daily log

Backwash Frequency:

Backwash when:

- Pressure gauge reads 10 psi above clean filter pressure
- Water clarity decreases
- Flow rate decreases noticeably
- At least every two weeks, even if pressure is normal

7.3 Pump Maintenance

- Check pump operation daily (listen for unusual noises)
- Inspect for leaks around seals and connections
- Monitor pressure gauges for abnormal readings
- Clean strainer baskets daily
- Lubricate motors according to manufacturer schedule
- Keep equipment room clean and dry
- Document all maintenance in equipment log

8. Water Contamination Response

8.1 Fecal Contamination

If fecal material contaminates the water[8]:

1. Immediately close the pool or hot tub to all bathers
2. Clear the facility and restrict access
3. Remove visible contamination using net or scoop
4. Dispose of contamination and cleaning tools properly
5. Adjust pH to 7.5 or lower
6. Verify water temperature is 25°C or higher
7. Raise free chlorine to 20 ppm
8. Maintain 20 ppm for minimum of 13 hours (or follow CT value chart)
9. Ensure circulation system operates continuously
10. Backwash filter thoroughly after contact time
11. Return chlorine to normal operating levels (1-2 ppm)
12. Retest all parameters to confirm within range
13. Document incident and response in contamination log
14. Submit water sample for microbiological testing
15. Reopen only after all parameters meet standards and contact time complete

Note: For formed stool, minimum contact time may be reduced. Consult Pool Standards for specific CT values.

8.2 Vomit Contamination

Follow the same procedures as fecal contamination[8]:

- Close facility immediately
- Remove visible contamination
- pH to 7.5 or lower
- Raise free chlorine to 20 ppm
- Maintain for 13 hours minimum
- Backwash and return to normal operation

8.3 Blood Contamination

For small amounts of blood with adequate chlorine residual present:

- No closure required if free chlorine is at 1 ppm or higher
- Monitor chlorine levels closely
- Remove any visible contamination

For large amounts of blood or low chlorine:

- Close facility
- Remove contamination
- Adjust chlorine to normal levels
- Test and verify parameters before reopening

8.4 Chemical or Food Contamination

If chemicals or food foul the water:

1. Close the facility immediately
2. Remove contaminant if possible
3. Test water parameters
4. Adjust chemistry as needed
5. Consider draining and refilling if severe
6. Consult Alberta Health Services if uncertain
7. Document incident and response

8.5 Documentation

All contamination incidents must be recorded in a Water Contamination Response Log including:

- Date and time of incident
- Type of contamination
- Actions taken
- Chemical adjustments made
- Contact time maintained
- Time facility closed
- Time facility reopened
- Operator signature

9. Facility Maintenance and Sanitation

9.1 Daily Cleaning Tasks

- Skim pool surface for debris
- Brush walls and floor
- Vacuum pool bottom as needed
- Empty skimmer baskets
- Clean deck areas
- Sanitize touch points (handrails, ladders)
- Clean and disinfect washrooms and change rooms
- Restock supplies (soap, paper products)
- Remove garbage and recyclables
- Inspect equipment for proper operation

9.2 Weekly Cleaning Tasks

- Thorough brushing of all pool surfaces
- Complete vacuuming of pool
- Clean tile line and remove scum
- Mop deck with disinfectant
- Deep clean washrooms and showers
- Test and clean chemical feeders
- Inspect and clean gutters (if applicable)
- Check and clean water level control devices

9.3 Monthly Maintenance

- Inspect all mechanical equipment
- Check for leaks in piping and equipment
- Test safety equipment (emergency stops, alarms)
- Inspect pool structure for damage
- Check lighting fixtures
- Review chemical inventory and expiry dates
- Inspect anti-entrapment devices
- Test temperature regulators

9.4 Sanitation Standards

All areas must be maintained in a clean and sanitary condition[8]:

- Walls, floors, and decks cleaned regularly
- Washrooms and change rooms sanitized daily
- Showers maintained in working order and cleaned daily
- Dry saunas and steam saunas (if present) cleaned and disinfected
- Equipment in contact with patrons sanitized regularly

10. Safety and Emergency Procedures

10.1 Anti-Entrapment Requirements

All suction outlets must[8]:

- Comply with ANSI/APSP-16 2011 performance standards
- Be installed and maintained according to engineer specifications
- Be inspected regularly for damage or missing components
- Never be blocked or obstructed
- Have proper flow rates maintained

10.2 Emergency Equipment

Maintain the following emergency equipment:

- First aid kit (stocked and current)
- Rescue equipment (reaching pole, ring buoy, backboard)
- Emergency telephone or communication device
- Emergency contact numbers posted
- Fire extinguisher (inspected annually)
- Emergency shutoff controls clearly marked
- AED (if required by facility type)

10.3 Emergency Response Procedures

Medical Emergency:

1. Activate emergency response (call 911)
2. Provide first aid if trained

3. Clear pool if necessary
4. Document incident completely
5. Notify owner/manager immediately
6. Complete incident report
7. Report to Alberta Health Services if required

Entrapment Emergency:

1. Shut off pump immediately (emergency shutoff)
2. Call 911
3. Attempt rescue if safe to do so
4. Provide first aid/CPR if trained
5. Document incident
6. Report to Alberta Health Services immediately
7. Do not restart system until inspected

Chemical Emergency:

1. Evacuate area if hazardous
2. Call 911 for serious spills or injuries
3. Provide first aid for exposures
4. Ventilate area
5. Contain spill if safe to do so
6. Do not mix cleanup materials with chemicals
7. Document incident
8. Report to supervisor

10.4 Patron Safety Rules

Post and enforce the following rules[8]:

- No diving in shallow areas
- Shower before entering pool
- No running on deck
- No glass containers in pool area
- No swimming alone (buddy system recommended)
- Appropriate swimwear required
- Children under supervision
- No food or drink in pool
- Obey lifeguard instructions (if lifeguard present)

10.5 Exclusion Criteria

The following individuals should not use the pool or hot tub:

- Anyone with open wounds or sores
- Anyone with contagious illness
- Anyone with diarrhea or gastrointestinal illness
- Anyone who is or may be incontinent (without appropriate protection)

10.6 Hot Tub Specific Warnings

Post signage warning that the following should consult a physician before use:

- Pregnant women
- Individuals with heart disease
- Individuals with hypertension
- Individuals with seizure disorders
- Individuals with diabetes
- Individuals with obesity

11. Required Signage

11.1 Mandatory Pool Signage

The following signs must be posted[8]:

- Water depth markings (at shallow end, deep end, and all changes)
- "No Diving" signs in areas where diving is prohibited
- Pool capacity (maximum bather load)
- Pool rules and regulations
- Emergency contact numbers
- Location of emergency equipment
- Operator contact information

11.2 Hot Tub Signage

Required hot tub signs include:

- Maximum temperature permitted (40°C)
- Health warnings (consult physician)
- Recommended maximum usage time (15 minutes)
- No alcohol use warning
- Pregnancy warning
- Children under supervision
- Shower before entering

11.3 General Safety Signs

- Emergency procedures and contact numbers
- First aid kit location
- Fire alarm locations
- Emergency exits
- "No Lifeguard on Duty" (if applicable)

12. Seasonal Opening and Closing

12.1 Spring Opening Procedures

1. Remove pool cover (if applicable)
2. Inspect pool structure for damage over winter
3. Check all equipment for proper operation
4. Clean and service pumps, filters, and heaters
5. Fill pool to proper operating level
6. Start circulation system
7. Balance water chemistry:
 - Adjust pH to 7.2-7.6
 - Adjust alkalinity to 60-180 mg/L
 - Add chlorine to achieve 1-2 ppm
8. Run filtration system continuously for 24-48 hours
9. Vacuum and clean pool thoroughly
10. Test all safety equipment
11. Submit water sample for microbiological testing
12. Obtain operating permit from Alberta Health Services
13. Post all required signage

14. Document all procedures and test results

12.2 Fall Closing Procedures

1. Balance water chemistry
2. Lower water level below return jets (if winterizing)
3. Drain equipment (pumps, filters, heaters)
4. Add winterizing chemicals if storing water
5. Clean pool thoroughly
6. Remove ladders and accessories
7. Cover pool securely (if applicable)
8. Secure equipment room
9. Shut off power to pool equipment
10. Document closing procedures
11. Notify Alberta Health Services of seasonal closure

13. Hot Tub Specific Procedures

13.1 Higher Temperature Requirements

Hot tubs operating above 30°C have stricter requirements:

- Minimum free chlorine: 2.0 ppm (higher than standard pools)
- More frequent testing required
- Temperature regulator must be functional
- Maximum temperature: 40°C
- Enhanced monitoring for bacterial growth

13.2 Hot Tub Maintenance

- Test water before opening and every 2 hours during operation
- Change water completely every 30-90 days depending on usage
- Clean and sanitize shell during water changes
- Clean filters more frequently than pool filters (weekly minimum)
- Monitor temperature regulator function daily
- Check jets for proper operation
- Maintain adequate chemical levels at higher temperatures

13.3 Biofilm Prevention

Hot tubs are susceptible to biofilm development:

- Maintain consistent chlorine residuals
- Perform shock treatments weekly
- Clean filters thoroughly and regularly
- Use enzyme treatments to reduce organic buildup
- Drain and deep clean periodically
- Inspect and clean all plumbing during water changes

14. Reporting to Alberta Health Services

14.1 Routine Reporting

- Submit weekly water samples for microbiological testing
- Make daily logs available for inspection upon request
- Maintain current operating permits
- Report changes in operation within required timeframes

14.2 Incident Reporting

Report the following incidents to AHS Environmental Public Health immediately:

- Drowning or near-drowning incidents
- Entrapment incidents
- Waterborne illness outbreaks
- Chemical exposure injuries
- Extended closure due to water quality issues
- Equipment failures affecting safety
- Structural damage to pool

14.3 Required Approvals

Obtain written approval from AHS before:

- Changing pool operating procedures
- Making renovations or alterations affecting hydraulic, disinfection, or filtration systems
- Changing ownership or management

- Reopening after extended closure

15. Staff Training and Competency

15.1 Initial Training

All new pool staff must receive training on:

- This operations manual and all procedures
- Water testing procedures and equipment
- Chemical safety and handling
- Emergency response procedures
- Record keeping requirements
- Customer service and patron safety rules
- Equipment operation

15.2 Ongoing Training

Provide regular training updates on:

- Changes to regulations or procedures
- New equipment or chemicals
- Incident response reviews
- Safety reminders and best practices
- Customer service skills

15.3 Competency Verification

- Observe staff performing testing and recording procedures
- Review test technique and accuracy
- Verify understanding of emergency procedures
- Document training provided
- Maintain training records for inspection

16. Quality Assurance

16.1 Internal Audits

Conduct regular internal audits to verify:

- All required tests are being performed and recorded
- Records are complete and accurate
- Equipment is functioning properly
- Chemical storage is appropriate
- Safety equipment is present and functional
- Signage is posted and legible
- Staff are following procedures

16.2 Corrective Actions

When deficiencies are identified:

1. Document the issue clearly
2. Implement immediate corrective action
3. Determine root cause
4. Prevent recurrence through training or procedure changes
5. Follow up to verify correction
6. Document all actions taken

16.3 Continuous Improvement

- Review incident reports for patterns
- Solicit feedback from staff and patrons
- Stay current with industry best practices
- Update procedures as needed
- Invest in equipment and training
- Benchmark against other facilities

17. Appendices

Appendix A: Daily Testing Log Template

Required daily entries:

- Date and time
- Free chlorine (ppm)
- Combined chlorine (ppm)

- pH
- Water temperature (°C)
- Water clarity (clear/cloudy)
- Total alkalinity (weekly)
- Chemicals added (type and quantity)
- Equipment maintenance performed
- Issues encountered
- Corrective actions taken
- Operator signature

Appendix B: Water Contamination Response Log Template

Required entries:

- Date and time of incident
- Type of contamination (fecal/vomit/blood/chemical/other)
- Time facility closed
- Corrective actions taken
- Chemical adjustments (pH, chlorine level)
- Contact time maintained
- Time facility reopened
- Water sample submitted (yes/no, date)
- Operator signature

Appendix C: Equipment Maintenance Log Template

Required entries:

- Date of maintenance
- Equipment serviced
- Type of service (routine/repair/replacement)
- Parts replaced
- Service provider (if external)
- Cost (if applicable)
- Next scheduled maintenance date
- Technician signature

Appendix D: Chemical Inventory Log Template

Required entries:

- Date
- Chemical name
- Quantity received
- Supplier
- Lot number
- Expiry date
- Current inventory level
- Storage location

Appendix E: Emergency Contact Information

Emergency Services:

- Police/Fire/Ambulance: 911

Alberta Health Services:

- Environmental Public Health: [Local contact number]
- After hours emergency: [Emergency contact]

Pools R Us Management:

- Primary contact: [Name, phone]
- Secondary contact: [Name, phone]
- After hours: [Phone]

Utilities:

- Gas emergency: [Phone]
- Electrical emergency: [Phone]
- Water emergency: [Phone]

Equipment Service Providers:

- Pool equipment service: [Company, phone]
- Chemical supplier: [Company, phone]
- Laboratory (water testing): Provincial Laboratory of Public Health

Appendix F: Safety Data Sheets (SDS) Index

Maintain current SDS for all chemicals used:

- Sodium hypochlorite (liquid chlorine)
- Calcium hypochlorite (granular chlorine)
- Muriatic acid (hydrochloric acid)
- Sodium carbonate (soda ash)
- Sodium bicarbonate (baking soda)
- Cyanuric acid (stabilizer)
- Other chemicals as applicable

Appendix G: Chemical Adjustment Guidelines

To Raise Free Chlorine:

- Add sodium hypochlorite or calcium hypochlorite
- Dose according to pool volume and desired increase
- Allow circulation for 4 hours before retesting

To Lower pH:

- Add muriatic acid or sodium bisulfate
- Add small amounts, retest frequently
- Never add more than 1 quart acid per 10,000 gallons at once

To Raise pH:

- Add sodium carbonate (soda ash)
- Dissolve in bucket of water before adding to pool
- Allow circulation before retesting

To Raise Total Alkalinity:

- Add sodium bicarbonate
- Calculate dose based on current level and pool volume
- Allow 24 hours for full effect

To Lower Total Alkalinity:

- Add muriatic acid slowly with circulation running
- Retest after 24 hours

18. Manual Review and Updates

18.1 Review Schedule

This manual must be reviewed:

- Annually at minimum
- When regulations change
- After significant incidents
- When operational changes occur
- When new equipment is installed

18.2 Update Procedure

1. Document proposed changes
2. Review with certified pool operators
3. Obtain approval from management
4. Update manual and revision number
5. Train all staff on changes
6. Distribute updated manual to all locations
7. Retain previous versions for records

18.3 Distribution

Current copies of this manual must be:

- Available at each facility
- Accessible to all pool operators
- Provided to new staff during orientation
- Available for Alberta Health Services review

Document Control:

Versio n	Date	Author	Changes
1.0	February 23, 2026	Pools R Us Management	Initial release

Approval:

Owner/Manager Signature: _____ Date:

Certified Pool Operator: _____ Date: _____