

April, 2001

In The Swim

Bye, Bye Winter! Hello Outdoor Swimming Season!

Spring is just around the corner, which means the summer swimming season isn't far behind. Let's take a moment to review the requirements for a seasonal pool pre-opening inspection.

- 🏊 All previous violations have been corrected within the specified time frame.
- 🏊 All equipment has been properly installed and tested and is in good operating condition after winter storage.
- 🏊 All pool-related facilities have been thoroughly cleaned and are in satisfactory condition.
- 🏊 Pool chemistry has been balanced.
- 🏊 Bacteriological water testing has been done and "not detected" result received.

Call 517-541-2615 Monday through Friday from 8 am to 5 pm to schedule your pre-opening inspection. Please do not call until all of the above requirements have been met.

Pool Management Tip

An often-expressed concern is the length of time that records should be kept. The following is a consensus of the period of time recommended through actions by courts, the Internal Revenue Service, and management experts.

Accident reports (minor)	3 years
Accident reports (major)	5 years
Bank statements	3 years
Cancelled checks	7 years
(except for those for important payments such as taxes, property purchases, etc., which should be kept permanently)	
Chemical cost/use	3 years
Chemical test records	3 years
Complaints (verbal)	2 years
Complaints (written)	3 years
Contracts (expired)	3 years
Contracts (still in effect)	Permanently
Correspondence (general)	2 years
Correspondence (legal)	Permanently
Employment applications	3 years
Energy cost/use	3 years
Equipment manuals	Permanently
Equipment repair/replace	3 years
Insurance policies	3 years
Payroll records	7 years
Personnel files	7 years
Sales records	7 years

Our Mailing Address and Phone Number Have Changed ...

Please mail all monthly operational reports and water sampling results to the following address:

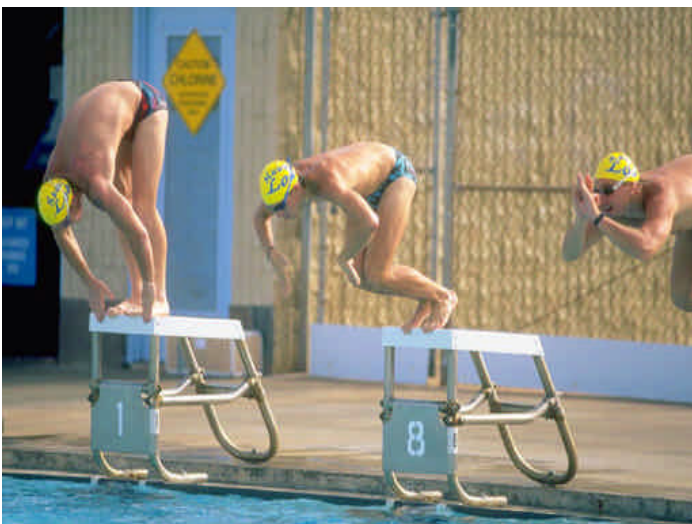
Barry-Eaton District Health Dept.

Environmental Health Division

528 Beech Street

Charlotte, MI 48813

(517)541-2615



Please remember ...

- 🏊 A copy of your monthly operating report is due by the 10th of the following month each month that the pool/spa is open.
- 🏊 Please fill out reports in their entirety and indicate whether the report is for the “pool” or the “spa.”
- 🏊 Mail to the address that appears at the bottom right of

Display your 2001 operation permit in a conspicuous place on the premises!

the front page of this newsletter.

- 🏊 Copies of your water testing results are due weekly (or monthly if you are on a reduced sampling schedule).

Speaking of a Reduced Water Sampling Schedule ...

A pool operator may file a written request for reduction of weekly bacteriological water sampling. We will review the operational history of the facility and determine if it meets the requirements for a reduced sampling frequency, defined as satisfactory pre-opening inspection (seasonal pools); no reoccurrence of a critical violation during two consecutive routine inspections; no continued non-critical violations for longer than a 2-year period; completed monthly operational reports submitted within 10 days after the end of each month; and acceptable water sampling history, which includes a pre-opening sample (seasonal pools), weekly routine samples, and any necessary follow-up samples. If a reduced sampling frequency is granted, a seasonal pool will provide one pre-opening sample and one sample every month during pool operation. A yearly pool will provide one sample per month. If you'd like to be considered for a reduced water sampling schedule, please send us a written request, and we'll be glad to review your file.

WARNING! WARNING!

- 🏊 Persons with certain conditions such as high blood pressure can experience shock when subjected to temperatures exceeding normal body temperature. Immersion of the trunk and all extremities in water at 102° F. will induce a mild fever in most persons. The degree of hazard varies with the water temperature, the immersion time, and the metabolic rate of the individual. The maximum permissible water temperature of a spa is 104° F.
- 🏊 Approximately two years ago, several members of a high school swim team developed respiratory problems from exposure to chlorine gas. The chlorine gas was produced after the swimming pool recirculation pump stopped operating, and the automatic controller for the chemical feeders continued sensing the need for chlorine and acid, thus continuing to feed both hypochlorite and acid solutions. The chlorine gas entered the pool through the return inlets when the swimming pool pump operation was resumed. A similar problem occurred a few years ago at a Lansing motel also equipped with automatic controllers for the chemical feeders. The automatic chemical controllers manufactured today and for the past 15 to 20 years are equipped with flow sensors or are electrically interlocked with the pump to prevent this problem from developing. If you have automatic chemical controllers older than 15 years, upgrading is required where appropriate. A simple test you can use to determine if there is a problem is to shut off the swimming pool recirculation pump when there is a demand for chlorine or acid and monitor the automatic chemical feeders.

Public Swimming Pool Operating Permits

Again this year, the State may be behind schedule in the issuance of operating permits for public swimming pools. As a result, many of you may not have an operating permit when you call to request a pre-opening inspection. Don't sweat it! Unless the State has informed us of enforcement action to deny or revoke an operating permit or a closing order was issued, the pre-opening inspection will be completed when requested.



Are You a Water Testing Genius?

Accurate water testing is the cornerstone of effective pool water treatment. For this reason, it is very important to understand the proper care and usage of your testing equipment. Covering topics from test kit shelf life to reagent drop size to chemical interferences, these 15 true-false questions will help determine if you're a water testing expert — or in need of a refresher course. So grab your No. 2 pencil and dive right in ...

True or False?

1. **Reagent age has the greatest effect on chemical reagent shelf life.**
 2. **Optimum storage conditions for chemical reagents include a temperature range between 36°-85° F.**
 3. **Deposits or build-up around the bottle tip may indicate a compromised liquid reagent.**
 4. **Reagents in brown bottles, if stored properly, have an indefinite shelf life.**
 5. **Chemically impregnated test strips can be quickly ruined by contact with moisture.**
 6. **When performing a water hardness test, a purple instead of blue endpoint is most likely indicative of chlorine in the sample.**
 7. **When using a dropper bottle to dispense a liquid reagent, static electricity can alter the drop size.**
 8. **Sunlight is best for reading results in a colorimetric test.**
 9. **When filling a sample tube, always read the fill level from the top edge of the meniscus.**
 10. **High levels of chlorine in the sample can cause a green endpoint when using a phenol red indicator.**
 11. **Hot water samples, such as from a spa, should be brought to room temperature before testing.**
 12. **Liquid reagents that have frozen may still be viable.**
 13. **You can never change the drop equivalence of a liquid reagent.**
 14. **When mixing a reagent into a water sample, do not use your finger to cap the vial.**
 15. **Reagents that are manufactured by different test kit suppliers can usually be interchanged.**
1. False. Storage conditions are the single most important factor in determining the shelf life of reagents. However, age is a factor — generally, replace any reagents more than a year old.
 2. True. In addition, store tightly capped reagents in their test case, out of direct sunlight, and away from treatment chemicals.
 3. True. Other factors that may indicate the reagent is compromised include a color change or staining of the plastic bottle. Test strips, however, may display no visible signs if the chemicals are compromised.
 4. False. Oxidizers, such as most reagents in brown bottles, are very sensitive to air and generally have the shortest shelf lives. On the other hand, if stored properly, acids and powders will remain effective over time.
 5. True. Even a little moisture can ruin a whole batch of test strips. Store them in a dry area, with the desiccant pad or bottle liner intact. Make sure your fingers are dry when reaching for a strip.
 6. False. The blue endpoint is most likely due to the presence of metal ions, such as copper from algaeicides or pipes. Add a masking agent before testing to eliminate the interference.
 7. True. Periodically using a clean towel or cloth to wipe off the dropper tip will eliminate static electricity that can build up around the tip. In addition, hold the dropper bottle vertically for uniform drips. Incorrect drop size can provide false test results.
 8. True. Natural, northern light is the preferred light source for reading colorimetric test results. Manufacturers sell an inexpensive (around \$100) lighting device that simulates natural light for indoor testing. Incandescent, fluorescent, or other light sources may alter the interpretation of the color developed in your sample.
 9. False. Always fill a container so the low point of the meniscus rests on the fill mark line.
 10. False. High levels of chlorine can cause a blue/purple color instead of a yellow-to-red color when using phenol red. To compensate, add a drop of thiosulfate to the sample before adding the indicator solution.
 11. False. It is not necessary to allow hot spa-water samples to cool to ambient temperature before testing.
 12. True. Allow the reagent to thaw at room temperature. However, if the bottle cracks, you see a crusty buildup around the dropper tip, or if there are floating particles that do not dissolve when the bottle is shaken, discard the reagent.
 13. False. In some cases, you can change the sample size proportionately to the desired change in equivalence. Check with the manufacturer before altering drop equivalences of tests.
 14. True. Body oils, perspiration, soap, and other substances on your hands may contaminate the test.
 15. False. Manufacturers make their reagents in different concentrations. Using one manufacturer's reagents with another's chemistry (or apparatus) will likely skew the results.

How do you rate?

- 13-15 correct: Congrats! Your water testing knowledge is the envy of your peers.
 9-12 correct: Keep up the good work!
 5-8 correct: Might be time to look into that refresher course.
 0-4 correct: Please put down your pencil and remain calm. Call 800-TEST KIT immediately and order a copy of *Pool & Spa Water Chemistry*.

Procedures for Limited Contamination of a Pool by Feces, Vomitus, Blood, Etc.

- A. Immediately clear the pool of all swimmers and close the swimming facility.
- B. Lifeguard, manager, or supervisor shall notify the pool operator/owner and the local health department.
- C. Remove as much contamination as possible by hand netting or through the use of the pool vacuum cleaner. Increasing the water level to improve performance of skimmers and gutters is also suggested if water level is low.
- D. Clean visible contamination from the pool drains, gutters, and side wall area.
- E. Immediately superchlorinate the pool. Adjust pH as necessary to maintain a range of 7.2 to 8.0, and maintain the disinfectant concentration for 8 to 24 hours. Superchlorination is accomplished by the hand application of a 5 to 10 ppm dose of chlorine directly to the pool. The following application rates will provide a 10 ppm dose:

Sodium Hypochlorite (12%)	1 gallon/12,000 gallons
Calcium Hypochlorite (65%)	1 pound/7,800 gallons
Lithium Hypochlorite (35%)	1 pound/4,200 gallons

- F. After 8 to 24 hours of pool filtration equipment operation, allow the chlorine residual to fall to 3 ppm, or adjust to 3 ppm or below. The pH is to be adjusted before and after the superchlorination procedure. Commercial compounds to reduce the level of chlorine residual in a pool are available. Use only in accordance with manufacturer's recommendations.
- G. Backwash filter or replace cartridge filter.
- H. The swimming facility may normally be reopened after 8 to 24 hours and the collection of a bacteriological water sample.
- I. Provide a complete record of the incident: type of contamination, action taken, disinfectant levels, time 5-10 ppm is maintained, and when pool is opened for public use on the monthly Swimming Pool Operation Report.

Algae Control and Algaecides

If adequate disinfectant residuals are maintained and periodic superchlorination is practiced, then algaecides are not normally needed. Many algaecides are simply relabeled disinfectants. Several types of separate algaecides are marketed, but the companies still recommend adequate disinfection to prevent algae growth.

If an algaecide is to be used, follow the label directions carefully. Do not use too little or too much. Low levels are not effective, and high levels are dangerous to swimmers.

Quaternary ammonium compounds are common algaecides in a liquid form and contain from 1 to 20% effective ingredient. The dosage varies around 1 gal/50,000 gal for an initial treatment of an algae bloom and 1 qt/50,000 gal for routine preventative treatment.

These algaecides are not to be used in place of regular disinfectants as they are ineffective against many bacteria, cause foaming when used at moderate dosages, add to the combined chlorine residuals, are eye and mucous membrane irritants, and can react dangerously with soaps and detergents.

Copper based algaecides are another common form of algaecide. Copper triethanolamine, copper sulfate, copper citrate, copper gluconate, and cupric carbonate or malachite are common active ingredients.


Another active ingredient in algaecides include poly [oxyethylene (dimethyliminio) ethylene (dimethyliminio) ethylene dichloride] (that's all one name!). This particular algaecide does not cause foaming but is toxic to fish so proper disposal is necessary. Simazine, colloidal silver, and sodium dimethyl dithio carbonate are other active ingredients in algaecides. Phenyl mercuric acetate was perhaps the most effective algaecide until it was banned because of mercury content.

pH Troubleshooting


Above 8.0


 chlorine power slowed down


 algae growth increased


 eye irritation

Below 7.2

 eye irritation

 chlorine odor increased

 skin rashes

 corrosion of pipes and fittings

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Community Since
the 1930's