

Lake Preservation Committee Lake Water Quality Statement

This statement is intended to provide a general overview of: our lake water in general, what may be contaminants in lake water, our LPC lake water monitoring program, and some lake water safety information.

Our Lake: Lake Monticello is an open body of water that is not chemically treated, and swimmers use it at their own risk. Lake Monticello is an ever changing body of water subject to what nature or man from time to time places in it or in the areas adjacent to the lake that may eventually find their way into the lake water. The lake is therefore not the same as a chemically controlled swimming pool. The ever changing nature of lake water means that the quality of lake water may differ in different parts of the lake at the same time. The quality and content of water in any one part of the lake will itself be subject to long term and short term changes. Longer term changes include those made by natural seasonal changes or by man made changes such as the drainage of lawn or related chemicals into the lake. Shorter term events can cause short term “spikes” in water quality, which then usually dissipate over time usually measured in hours. This would include a major rain storm or a sewer line break. It is the nature of a lake to continuously seek to purify itself. A healthy lake engages in a continuous process of absorbing and chemically altering most items entering the lake to, in most cases, produce plant, fish, or other life forms food or sediment. When a pollution event dumps something into the lake that is greater than the normal purification process can handle, the process continues, but take longer to complete. If the elements are dumped over a longer time period and remediation is not done, the health of the lake may deteriorate. Such long term deterioration can have a negative, long term, effect upon the quality of the lake water.

What may be hazardous in lake water? Virginia has many factories, bio-industries, power plants and animal farms that release hazardous substances into its open waters. Depending on the type of contamination and the location, the state has issued lists of hazardous substances and upper acceptable limits for those. Among those substances are heavy metals such as lead, and pesticides. Fortunately none of these listed limited contaminants are relevant for Lake Monticello. The only state limit we have to observe is the one for a family of microorganisms, expressed as *E. coli*, originating from human and animal waste. The LPC monitoring program described below seeks to test for these hazardous organisms.

E. coli: A hazardous bacterium which most often receives publicity and generates concern is *E. coli*. *E. coli* are natural microorganisms found, for example, in animals and humans to help digest food and is passed from the body as waste. Soil around the lake retains some animal, human and related *E-coli* material. Animals and humans using the lake can add to the natural levels of *E-coli* in the lake. In addition, especially following a major rain storm, *E-coli* can drain into the lake from the surrounding soil. Lake Monticello has farmlands within its watershed from which significant rainstorms wash greater than normal amounts of *E-coli*-laden animal waste into the lake. LPC periodic testing has indicated that under normal conditions, the *E-coli* levels in the lake remain well below the danger levels noted in state regulations. However, those tests have also confirmed that following a rain storm, the level of *E-coli* increases beyond normal levels; however, those levels return to normal in approximately 24 to 48 hours following the storm. We cannot control the runoff water from farms, but residents can control our local environment, and you can help. 1: Clean up after your pet. Pet waste causes a large percentage of *E-coli* problems. Each gram of dog feces has over 20,000,000 *E. coli* cells in it. Even if you're miles from the lake, the storm water that washes over your dog's waste is going somewhere downhill and often, it's the lake.

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You and lake water: Just as the lake is ever changing, so are humans and animals that use the lake. Everyone has different tolerances or reactions to certain foods, chemicals or weather at different times in their lives. Certain individuals, who come in contact with E-coli through cuts in the skin or ingestion of water containing concentrations of E-coli, may become sick for a time. Reference to general medical information indicates that such sickness is rarely serious or life threatening. Based upon the foregoing, LPC has recommended that persons avoid water contact with the lake immediately following a major rain storm use caution, especially if they have a history of adverse reaction to E-coli or related elements, are suffering from an illness or have cuts or skin abrasions, or have or may have a compromised immune system. That caution would be to consider not using the lake for 24 to 48 hours following a major rain storm. Potential individual adverse reactions to being exposed to lake water or ingesting lake water may exist in normal use of the lake and will depend upon each individual. If you have a concern, it may be best addressed to a physician familiar with that individual.

Lake Water Monitoring: The Lake Preservation Committee (LPC) has for many years monitored the quality of our lake water. That monitoring has been in basically two (2) areas.

1. Long Term Trend Monitoring. LPC proactively takes consistent water samples in designated places around the lake several times a year, usually during the summer season, to determine the levels of nitrogen (as nitrates) and phosphorus (as phosphates), as indicators of the natural ageing of our man-made lake. These are not hazardous substances, and they are not limited by state or other regulation. For several decades their levels have indicated a “mildly eutrophic” (rich in mineral and organic nutrients) status of the lake, which is very good for a multipurpose lake. There is no sign of a deteriorating trend, but we continue to add data to our baseline to watch out for a possible change. The water samples are analyzed by an outside expert testing firm and the data from the reports are captured on LPC charts which track the long term trends of those elements in the lake to determine if any of them appear to be trending toward unacceptable levels within the lake as noted in government water safety regulations. LPC reviews the results of this monitoring and reports to the LMOA board of directors and LMOA staff any trends considered dangerous and likely in need of corrective action. To the date of this statement, LPC records and reports from outside testing experts have disclosed no consistent levels or trend lines over time indicating any substances exceeding safe levels in current State of Virginia regulations.

2. Pollution Event Monitoring. LPC performs a reactive role in the case of specific Pollution Events. When a Pollution Event occurs such as a sewerage spill from some part of the Aqua Virginia system in and around the lake, from a major rain storm event, or from any other identified pollution event, there is in place an LMOA response plan aimed at documenting the facts of such events and providing an appropriate remediation response. For example, if a sewerage event is reported to LMOA at one of our swimming beaches, the LMOA police are dispatched to the site for a preliminary assessment of the event. Aqua Virginia is requested to send a representative to inspect the event, and LPC is requested to send a representative to inspect the event. After a combined assessment of the event, directions for action are issued which, if appropriate, might include closing of that beach until it is considered again safe to use and having Aqua Virginia stem the leak and, if appropriate, clean any area water or beachfront. In the case of most major rain storm Pollution Events, it is currently impractical to attempt water testing following the Event because even if the tests could be taken, it takes longer than 24 hours before samples can be processed and results reported which, by then, the effects of the storm are mostly dissipated.

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Lake Water Safety Information: In addition to the periodic publication of this Statement in various LMOA publications, it is included in the LMOA documents listed on the LMOA website. Should a Pollution Event occur and result in a beach closing or other action affecting the use of the lake, notice of that action is published in the LMOA “Friday Flyer”, noted on the LMOA TV Channels, posted on the LMOA website, and posted on LMOA beach and other message boards. During the summer swimming season, the “Friday Flyer” contains reminders each week about what you should consider before using the lake. If a beach is closed due to a Pollution Event, it will be cordoned off with a colored warning tape. You should not swim at that beach until the warning tape is removed by LMOA staff. If you have a question, you may call the Main Gate at LMOA or the LMOA office.