

Water Sampling Guideline

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Applies To: This Guideline is issued by the Department of Environment, Health & Safety to provide guidance and consistency in management of sampling water for potential contaminants at the University of Michigan.

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Summary

This Guideline provides procedures for sampling water for biological, chemical and physical contaminants at the University of Michigan (U-M) by representatives of the Environment, Health & Safety (EHS) department.

Scope

This Guideline is in effect whenever U-M students, faculty, or staff request an investigation into the safety of the water to be used for consumption by humans or research animals. The water used for consumption must be provided by a municipal source or well owned by the University of Michigan or operated for the purpose of supplying water to university students, faculty, staff or research animals.



This Guideline also encompasses water sampling for all of the public swimming pools on the Ann Arbor campus of the University of Michigan. Public swimming pools are licensed by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the water will be sampled in accordance with the Michigan Public Health Code, 1978 PA 368.

The following local and state agencies are included in the communication process of water quality/safety results, when applicable.

- Washtenaw County Health Department (WCHD)
- Michigan Department of Agriculture and Rural Development (MDARD)
- Michigan Department of Health & Human Services (MDHHS)
- Michigan Department of Environment, Great Lakes, and Energy (EGLE)

Reference and Regulations

“Agency Agreement” between the University of Michigan, Washtenaw County Health Department, and the Michigan Department of Environment, Great Lakes, and Energy; revised April 2010.

[Michigan Safe Drinking Water Act, Act 399 of the Public Acts of 1976](#)

[Michigan Public Health Code, 1978 PA 368, Article 12 Part 125 Public Swimming Pools](#)

[Guidelines for Infection Control in Dental Health-Care Settings - 2003](#)

[Guide for the Care and Use of Laboratory Animals](#), published by The National Academies Press

[National Primary Drinking Water Regulations](#)

[Revised Total Coliform Rule](#)

[Noncommunity Drinking Water Sampling Requirements](#)

[Seasonal Public Groundwater Supply Handbook](#)

Definitions

Building Manager - the person who is designated as being responsible for the building management and to whom any reporting and notification is made; the contact person.

Public Health Specialist – EHS staff member responsible for drinking water and public swimming pool safety concerns on campus.

Responsibility

Building Manager

Forward all questions, concerns and contact information for water quality issues to EHS at (734) 647-1143.

Cooperate with EHS Public Health Specialists by posting appropriate signage, locking out drinking fountains and fixtures when necessary, running water in advance of testing, and complying with all water quality investigation requests.

Coordinate water supply preventive maintenance to occur during low building use hours when possible. Flush the water supply system after maintenance is conducted to prevent occupant exposure to products of corrosion. Make building occupants aware of the things they can do to help prevent water quality problems. Examples of prevention measures include only using cold water for consumption purposes and run the water after a weekend or long break, before use by building occupants

Certified pool operators (CPO)

Certified pool operators must maintain their pool chemistry and equipment as required in the [Public Swimming Pool Rules](#).

Michigan Department of Environment, Great Lakes, and Energy (EGLE) and Michigan Department of Health & Human Services (MDHHS)

EGLE and MDHHS will provide consultation and advice in conducting a waterborne illness investigation, assist in collecting and processing data generated during an investigation and coordinate efforts that fall beyond the scope of a single health district.

EHS

EHS Public Health Specialists are responsible for collecting water samples to evaluate the risk of biological, chemical or physical contaminants. If there has been an incident resulting in consumption of water suspected to be contaminated, the Public Health Specialists will initiate an investigation and suggest that ill persons seek immediate medical attention. Upon receipt of the complaint or request for a quality check, the information must be immediately referred to the EHS Public Health Specialists or the Public Health Coordinator for follow-up. This includes calls received by the EHS On-Call Team.

The EHS Public Health Specialists will be responsible for the following:

- Collect water samples for the following locations:
 - University-owned public swimming pools – monthly
 - University-owned therapy pools - quarterly
 - Compliance with the Type II water well program - quarterly
 - Type III wells serving U-M students, faculty, staff, visitors or research animals - annually
 - Dental School to check the water lines at the dental chairs - quarterly
 - Michigan Medicine Pharmacy deionized (DI) water systems - biannually
 - Childcare Centers - annually
 - Investigation of water quality complaints - upon request
- Communicate with the person making the complaint and determine a sampling plan for the implicated water fixture.
- Communicate and coordinate with affected University departments to assure the necessary procedures are followed to minimize further illness.
- Conduct an investigation of a potential waterborne illness outbreak jointly with the WCHD as provided for in the “Agency Agreement.”
- Take immediate action to minimize the potential spread of a suspected or confirmed waterborne illness.
- Make the necessary contacts, as noted in the Procedures section of this Guideline.
- Document all actions taken, disseminate as necessary, including a final report.
- Review this Guideline on an annual basis. Communicate changes to the groups identified in the Responsibility section of this Guideline.
- Serve as the University liaison for local, county, state and federal agencies regarding health and safety issues.



University of Michigan Dental School

Disinfect the water supply according to the manufacturer of the disinfection product.

Institutional Animal Care & Use Committee (IACUC)

Inform EHS of any new required water sampling locations. Inform EHS of changes to the water sampling parameters required by the American Association for Accreditation of Laboratory Animal Care (AAALAC).

Washtenaw County Health Department (WCHD)

Receive water related complaints from UM affiliates and direct to EHS, jointly conduct waterborne illness investigations, as specified in the "Agency Agreement." The County Outbreak Team, including EHS staff, meets on a quarterly basis to discuss illness outbreaks, control, prevention and recommendations for process improvement.

Michigan Medicine Department of Pharmacy

Department of Pharmacy Compliance Specialist will coordinate initial performance qualification and biannual pre-preventative and post-preventative maintenance water samples for DI water systems to be analyzed for total coliform, HPC, and resistivity.

Water Well Operators

Water well operators must properly maintain their wells which includes proper decommissioning for winter (when appropriate) and notification prior to initial operation in the spring.

Childcare Centers

As part of Filter First law, Childcare centers must keep a copy of DWMP available for review at all times.

Procedures

When to Contact EHS

Contact EHS at 647-1143 to report suspected, apparent, confirmed, or exposed cases of waterborne illness or water contamination.

Contact EHS for water sampling each spring after starting the water supplies for wells that are decommissioned during the winter.

Internal EHS Procedures

Pool Water Sampling

On a monthly basis, water from each EGLE licensed public swimming pool will be collected and sent to an approved laboratory for analysis of total coliform and heterotrophic plate count (HPC). On a quarterly basis, water from each therapy pool will be collected for analysis. The water quality must meet the parameters set forth in the [Michigan Public Health Code, 1978 PA 368, Article 12 Part 125 Public Swimming Pools](#). If the water quality exceeds those parameters contact the certified pool operator to discuss a course of action which may include pool closure until the water quality has been determined to be safe for swimming.

Type II Drinking Water Wells

The University of Michigan owns Type II wells with both seasonal and year round operations. The following



locations have wells that are considered Type II water wells.

- Radrick Farms Golf Course Clubhouse: 4875 Geddes Rd, Ann Arbor, MI 48105
- Adventure Education Center at Radrick Property: 1120 N. Dixboro Rd, Ann Arbor, MI 48105

Seasonally operated Type II wells and water supplies will be evaluated according to the [Seasonal Public Groundwater Supply Handbook](#). [The Start-Up Certification for Seasonal Noncommunity Public Water Supply](#) forms will be completed and submitted to the Washtenaw County Noncommunity Water Supply Coordinator prior to operating the well.

All Type II drinking water wells will be sampled according to the sampling site plan at a frequency determined by the Washtenaw County Noncommunity Water Supply Coordinator.

Type III Drinking Water Wells

Type III wells serving the University of Michigan include rental housing units, research labs and work place water supplies. The following locations have wells that are considered Type III water wells.

- 2224 N. Dixboro Rd, Ann Arbor, MI 48105
- 2615 Gale Rd, Ann Arbor, MI 48105
- Edwin S. George Reserve: 5650 Doyle Rd, Pinckney, MI 48169
 - Caretaker's House
 - Camburn Lab (Used for housing, not laboratory space)
 - Hill & Dale House
 - Pond Lab (When in use for research projects)
- Stinchfield Woods Caretaker's House: 9401 Stinchfield Woods Rd, Pinckney, MI 48169 (When occupied)

On an annual basis, the EHS Public Health Specialists will sample all Type III drinking water wells for the following parameters:

- Total Coliform
- Nitrates

In the event the water samples exceed the drinking water standards, sampling and mitigation procedures will follow those for Type II drinking water wells.

Dental School Water Sampling

EHS will coordinate and collect quarterly water samples (at least 10% random sample of patient chairs) with clinic managers. The water will be sampled for HPC to determine if it exceeds the parameters set by the Centers for Disease Control for [infection control in a dental care setting](#). If water quality exceeds the recommended 500 colony forming units per milliliter (CFU/mL), the dental program liaison will be notified and a corrective course of action will be recommended.

Deionized Water Systems

Upon request from the Department of Pharmacy, EHS will collect initial performance qualification and biannual pre-preventative and post-preventative maintenance water samples for DI water systems to be analyzed for total coliform, HPC, and resistivity.

Childcare Centers

EHS will coordinate annual bacteria and lead sampling for all drinking water fixtures in childcare centers at the University of Michigan. EHS and childcare center will update Filter First drinking water management plan (DWMP) on an annual basis.

Waterborne Illness or Contamination

The EHS Public Health Specialists must receive reports of suspected, apparent, confirmed, or exposed cases of waterborne illness and water contamination. The best contact is by phone to assure the information is received. Based on the information obtained during the investigation, decisions will need to be made regarding the continued use of particular water fixtures and the necessary notifications to be made.

Notifications must immediately be made in the event of a suspected case of waterborne illness or deliberate contamination:

- Public Health Coordinator
- OH&S Manager
- EHS Assistant Vice President

EHS will evaluate the situation to determine a course of action. Procedures during the course of action will include the following.

- Collect water samples for water quality analysis.
- Submit all water samples to a certified laboratory for analysis.
- Interpret the sample results and disseminate the information to the appropriate persons.
- Lock out fixtures that exceed the maximum contaminant level (MCL) for contaminants listed in the National Primary Drinking Water Regulations.
- Identify and execute a plan for remediation of contaminated water supplies or swimming pools.
- Evaluate completed remediation for safety.
- Prepare a report summarizing the findings of the investigation, test results, and any corrective action(s) necessary to protect the public health. The report will be issued to the EHS Director, all affected persons, director and management staff of the affected University departments, and any regulatory agency with involvement in the investigation.

The bottles for collecting water samples are located in the EHS Equipment Room #1583 in the Campus Safety Services Building (CSSB). The chain of custody forms are located in the water quality filing cabinet in the Public Health Specialist file storage area. The appropriate reference material for water sampling can be found in the water sampling cabinet and the reference material listed in this guideline.

Technical Support

All referenced guidelines, regulations and other documents are available through EHS (734) 647-1143.