

CHAPTER 9: Drinking Water

Purpose and Applicability of Regulations

All fruit and vegetable processors are required to supply a safe source of drinking water to their employees that is free from microbial and chemical contamination. Also, many activities require safe, potable water for their processes. Many food processors in Michigan are customers of a public water system through connection to a municipal or community water supply. However, those plants that supply their own water from a well or surface water source are public water systems (called noncommunity water supplies) and must meet certain drinking water standards. Additionally, these water supplies must meet construction, operational, water use reporting/permitting and sampling requirements. They must also meet both state and local ordinances regarding cross connection control measures.



If you buy your water from a community water supply (e.g. the City of Detroit or Grand Rapids), then you would not have sampling or monitoring requirements related to the source water system. Those requirements are the responsibility of the water supplier. Instead, the cross connection section of this chapter would be useful for the protection of your employees (Section 9.4). In addition, plumbing codes would apply (contact your local building authority)

Agencies and Their Laws and Rules

In 1974, the U.S. Congress passed the Safe Drinking Water Act. This act gave the U.S. Environmental Protection Agency (EPA) responsibility for establishing and enforcing drinking water standards nationwide. The Michigan Safe Drinking Water Act, Public Act 399, as amended (Act 399) was enacted in 1976 and enables the Michigan Department of Environmental Quality (DEQ) to maintain direct control over the public drinking water program in the state.

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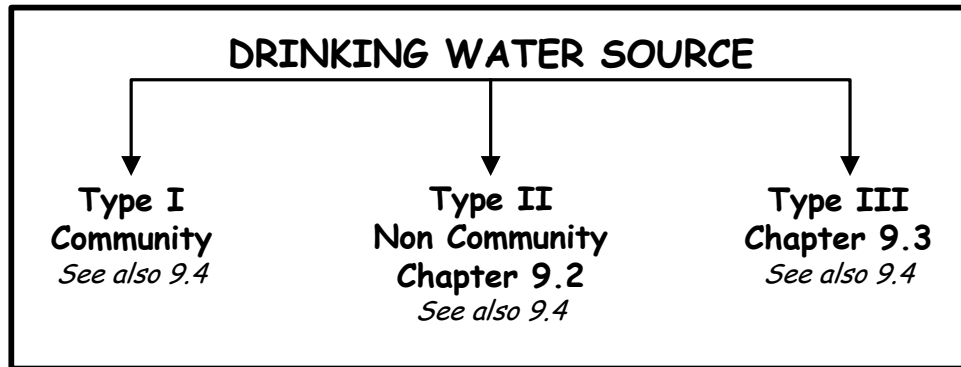
Where To Go For Help

Community or Type I public water systems serve 25 or more residences or 15 or more living units year-round. These systems are regulated directly by DEQ staff. Noncommunity or Type II public water systems serve 25 persons or more, or 15 service connections or more, at least 60 days per year at facilities such as factories, schools, restaurants, campgrounds, churches, etc. (A service connection is defined as “a direct connection from a distribution water main to a living unit or other site to provide water for drinking or household purposes.”) DEQ contracts with local health departments to provide technical assistance and administer the noncommunity water supply regulations. Local health departments also provide services for public water systems that serve less than 25 persons (Type III supplies).

In addition to requirements specific to public water supplies outlined in Act 399, water well construction standards are regulated by Part 127 (Water Supply and Sewer Systems) of the

Public Health Code, Public Act 368 of 1978, as amended (Act 368), and Administrative Rules, as amended. Also, when a well is constructed to obtain water to be used solely in a process and not for any drinking or sanitary purposes, it is regulated under Part 127. An example of this includes non-contact cooling water.

9.1 Key to Chapter



What type of drinking water supply do you have at your facility? There are three types of public water supplies defined in the state of Michigan:

- Community (Type I) water supplies** provide year-round service to not less than 15 LIVING units or serving not less than 25 RESIDENTS. Examples include municipal water systems or apartment complexes and subdivisions on their own water supplies. Source water for community supplies may be obtained from treating surface water or from groundwater wells. Some fruit and vegetable processors are customers of Type I community water supplies and as such, do not have jurisdiction over the supply itself, just their own distribution systems. A processor that is a customer of a municipal or community water system may have obligations regarding cross connection control. The supplier of water has local jurisdiction regarding this issue.

If your facility is a customer of a community water supply system, review section 9.4 related to cross connections.

- Noncommunity (Type II) water supplies** provide service to not less than 15 SERVICE CONNECTIONS or which serve not less than 25 INDIVIDUALS on an average daily basis not less than 60 DAYS OUT OF THE YEAR. This could be the case for your facility if you have your own water supply, such as a well. Treated surface water meeting safe drinking water standards may also be a source of water for a noncommunity supply. Processors may be Type II water supplies on their own supply or may be connected to a well serving more than one customer, such as a well which serves an industrial complex with more than one business in it.

If your facility has a Type II water supply, then go to Sections 9.2 and 9.4 related to cross connections.

- Type III water supplies** are not Type I or II; they serve less than 25 persons per day. Examples include small businesses, and wells serving only a few homes.

If your facility has a Type III water supply, go to Section 9.3 and review 9.2.5.

9.2 Noncommunity (Type II) Water Supplies

The local health departments inspect Type II water supplies at least once every five years. Noncommunity supplies are required to sample routinely, meet drinking water standards, and maintain their water systems in a sanitary condition in accordance with Act 399. Type II noncommunity supplies fall under two categories:

*A **transient noncommunity** water supply is one that serves at least 15 service connections or at least 25 people on an average daily basis for at least 60 days out of the year. Examples include campgrounds, highway rest areas, and churches.*

*A **nontransient noncommunity** water supply is one that routinely serves the **same** 25 or more people on a daily basis at least six months out of the year. Examples include factories, schools, or other businesses that employ 25 persons or more.*



Typical Commercial/Industrial Well Head

9.2.1 Permits & Permit Fees

Permits for Type II water supplies must be issued by the local health department for the county. Construction details and a site plan must be included in the application submittal. Permit fees for Type II noncommunity water supplies are set by the local health department issuing the permit. These fees vary.

9.2.2 Annual Fees & Laboratory Fees

Noncommunity supplies are required to pay an annual fee assessed by October 1 each year based upon their status as a transient or nontransient noncommunity public water supply. The fee is due by November 30 each year. The owner of the water supply is also responsible for payment of any laboratory fees for testing of required water samples.

9.2.3 Certified Operator Requirements

An operator must be certified in the classification designated by Act 399 if they are in charge of a treatment system necessary for public health reasons or a distribution system at a Type II noncommunity water supply. "Treatment" is defined as a technology that is employed by a public water supply for the control of the chemical, physical, biological, or radiological characteristics of the water supply. A "distribution system" is one that is composed of components through which water is distributed and used for drinking/household purposes. The components may include piping, fixtures, transmission mains, pumps, storage tanks, etc.

As of December 8, 2002, all nontransient noncommunity water systems are required to have a certified operator. The certification by the DEQ is based on the operator's qualifications, experience, a written examination, and a laboratory examination in some cases. Noncommunity water supply operators are certified based on a written or oral examination and may have to demonstrate knowledge of the operation of the treatment and monitoring equipment.



Certified Operator Certificate

9.2.4 Sampling Requirements

Type II noncommunity water supplies must all sample for coliform bacteria and nitrates/nitrites; however, the nontransient supplies must also sample for metals, arsenic, cyanide, volatile organic compounds, synthetic organic compounds, lead, and copper. Other sampling requirements may apply if certain treatment technologies are used, such as corrosion control systems. Sampling requirements are based upon which category the water supply falls under, and the sampling frequency is determined by the local health department based on inspection results, water quality, population served, and sampling history. The laboratories used by the supply must be certified by the state for the components being tested.



9.2.5 Water Use Program

Michigan and the other states and provinces in the Great Lakes region have each enacted laws that require major water users to report water withdrawals made within the Great Lakes Basin. This information provides an environmental baseline for managing water resources in a more integrated manner, and strengthens the legal basis for opposing unwarranted diversions of Great Lakes water. The Water Use Program is responsible for registering large quantity withdrawals, collecting annual water use data, making determinations on the potential impacts to the water resources as a result of a proposed withdrawal, and issuing water withdrawal permits.

If your facility has the capacity to make a withdrawal of at least 100,000 gallons/day averaged over a 30 day period (roughly a 70 gallon/minute pump), then you are subject to water use reporting requirements. A person making a large quantity withdrawal must report the volume of that withdrawal to the MDEQ by April 1st of each year on a form provided by the MDEQ. There

is an annual \$200 reporting fee. Fees are used to help defray the cost of administering the program. A person who withdraws less than 1.5 million gallons within the year is exempt from the fee.

For a registration form or to learn more about this program, please call the Water Bureau, Drinking Water and Environmental Health Section at 517-241-1435.

New withdrawals of over 2,000,000 gallons per day capacity require a water withdrawal permit to assess potential impacts to the water resources. In environmentally sensitive areas, permits may be required for substantially smaller withdrawals.

Contact the WB, Water Use Program for questions, report forms, or a permit application at 517-241-1435 or find information online at www.michigan.gov/deqwateruse.

9.3 Type III Water Supplies

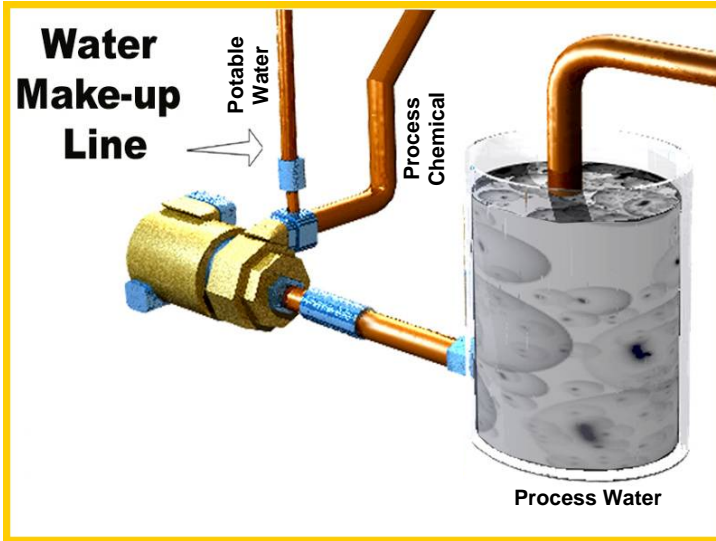
Type III public water supplies are regulated by local health departments under both Act 399 and Part 127 of Act 368. A Type III supplier must comply with all applicable state and local plumbing codes, as well as any local codes regarding water supplies. The supply must meet minimum construction standards outlined in Part 127 but may be required to meet more stringent construction and/or sampling requirements based upon site specific conditions, such as groundwater contamination, geologic conditions, etc.

Permits for Type III water supplies are obtained from the local health department. Permit fees for Type III public water supplies, or wells providing processing water for non-potable uses only, are set by the local health department or other agency having jurisdiction over issue of well permits in that county. The owner of the water supply is responsible for any sampling fees.

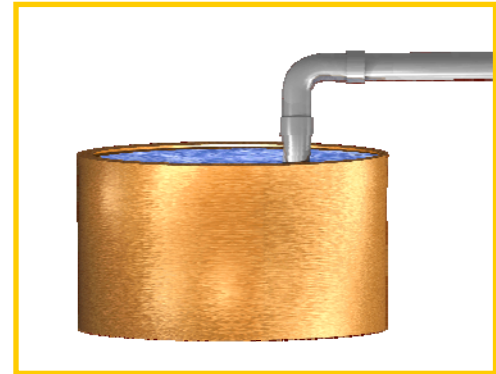
Unless otherwise specified by the local health department or other agency having jurisdiction, Type III water supplies and process water wells are not required to routinely submit water samples. Type III water supplies are not required to have a certified operator.

9.4 Cross Connection Requirements

A cross connection is a connection or arrangement of piping or appurtenances (fixtures, fittings, or equipment) through which a backflow into the potable water supply may occur. It is the responsibility of water utility customers or public water supply owners to comply with all cross connection control regulations in their area or municipality. No cross connections are allowed between a public water supply and a secondary water source, such as a well. Examples of cross connections include submerged inlets, such as unapproved ball cock assemblies in toilet tanks; unprotected connections between the water supply and a boiler containing additives; or piping submerged in a tank or vessel which may contain a contaminant, such as a mixing or electroplating tank.



Typical Cross Connection - Potable Line Into Process

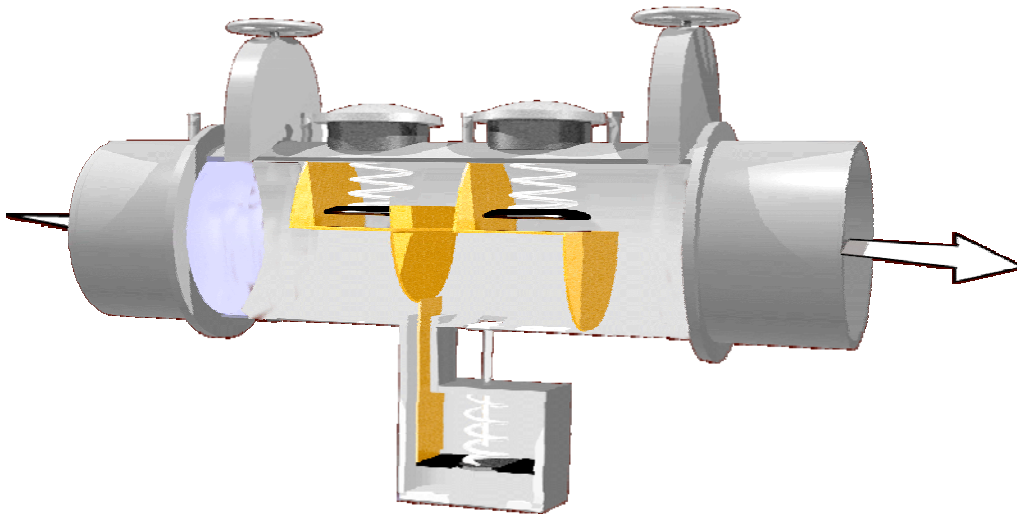


Typical Cross Connection – Submerged Inlet

Act 399 states that “a connection with a public water supply shall comply with existing laws, ordinances, and rules, including (a) Plumbing, Public Act 266 of 1929, as amended, being 338.901 to 338.917 of the Michigan Compiled Laws,” as well as any local ordinances or rules providing acceptable protection against cross connections. Public water supplies are required to develop a comprehensive control program for the elimination and prevention of all cross connections. The program should include a time schedule for inspection and reinspection of all water utility customers’ premises for possible connections, including manufacturing sites. This periodic inspection is to “ascertain whether or not safe air gaps or required protective devices are in place and in working order.” The inspection may include testing of certain backflow prevention devices, such as reduced pressure principle backflow devices, etc. A manufacturer or commercial establishment may be responsible for having such devices in its facility tested on a periodic basis. A user of a public water supply must also have written approval from the water utility or the agency having jurisdiction over the water supply of any proposed corrective action or protective device before using or installing it. During an inspection of the water supply, if cross connections are identified, a compliance schedule may be established depending upon the degree of hazard and the time required to obtain and install equipment.

If a cross connection has not been corrected within a reasonable period of time, the distribution system of the customer may be disconnected from the public water supply in such a way that it cannot be connected by any unauthorized person. When a secondary water source is used in addition to a public water supply, any exposed public water supply and secondary water piping shall be identified by distinguishing colors or tags and maintained so that each pipe may be traced easily in its entirety. There can be no connections between the two distribution systems.

Reduced Pressure Principle Assembly (RP)



Type of Backflow Prevention

The reduced pressure principle backflow preventer is an arrangement of spring loaded check valves designed to prevent the backflow of water. If the pressure within the public water supply system becomes less than the in-plant system (that going in becomes less than the pressure going out), the normal direction of flow through the backflow preventer would tend to reverse, causing a series of two check valves to restrict the flow of any water back into the public water supply system.

You can learn more about cross connections, along with the methods and equipment used to eliminate them by taking MDEQ's annual Cross Connection Seminar offered through the [Drinking Water Operator Training and Certification](#) programs. For more information, contact the Environmental Assistance Center 1-800-662-9278.

WHERE TO GO FOR HELP

SUBJECT: State and federal drinking water regulations

CONTACT: DEQ, Water Bureau
(517) 241-1300
www.michigan.gov/deqwater

SUBJECT: Federal drinking water program

CONTACT: EPA Office of Groundwater and Drinking Water
www.epa.gov/OGWDW

SUBJECT: Permitting, fees, and sampling requirements associated with Types II and III water supplies

CONTACT: Local Health Department
www.malph.org

SUBJECT: Training and certification of water supply operators

CONTACT: DEQ, Environmental Science and Services Division
Water and Wastewater Operator Training Program
(517) 241-7199
www.michigan.gov/deqoperatortraining

SUBJECT: Water use reporting and permitting

CONTACT: DEQ, Water Bureau
Drinking Water and Environmental Health Section
(517) 241-1435
www.michigan.gov/deqwateruse
