Sea Grant
LAW CENTER

PFAS-related Law and Regulatory Provisions

Michigan

Laws

- Mich. Comp. Law § 29.369c - Use, handling, and storage of firefighting foam concentrate
- Mich. Comp. Law § 324.14701 - Definitions
- Mich. Comp. Law § 324.14703 - Use of firefighting foam containing PFAS; reporting requirements
- Mich. Comp. Law § 324.14705 - Collection program for firefighting foam concentrate containing PFAS
- Mich Comp Law § 408.1014 - Use of firefighting foam; promulgation of rules
- Mich Comp Law § 460.931-460.949 - Property assessed clean energy program (Mitigating and addressing PFAS contamination in portable water systems would count as an “environmental hazard project.”)

Regulations

- Mich. Admin Code r. 325.10308b - Best available technology (for treating drinking water)
- Mich. Admin Code r. 325.10604g - MCLS for PFAS
- Mich. Admin Code r. 325.12708 - Certification for PFAS analyses
- Mich. Admin Code r. 325.10401a - General public notification requirements (for drinking water violations)
- Mich. Admin Code r. 325.10405 - Content of Public Notice (for drinking water violations)

Michigan Compiled Laws Annotated
Chapter 29. Fire Prevention
Firefighters Training Council Act (Refs & Annos)

M.C.L.A. 29.369c

29.369c. Use, handling, and storage of firefighting foam concentrate

Effective: October 6, 2020
Currentness

Sec. 9c. (1) Firefighting foam concentrate containing intentionally added PFAS must not be used in any firefighter training required under this act.

(2) Until December 31, 2023, the firefighter training required under this act must include both of the following subjects:

(a) The proper use, handling, and storage of firefighting foam concentrate.

(b) The best environmental and public health practices, including, but not limited to, containment and proper disposal, and decontamination of the firefighter's equipment and body, following the use of firefighting foam.

(3) The firefighter training under subsection (2) may involve the use of a video or online resource.

Credits
P.A.1966, No. 291, § 9c, added by P.A.2020, No. 133, Eff. Oct. 6, 2020.

M. C. L. A. 29.369c, MI ST 29.369c
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 324. Natural Resources and Environmental Protection
Natural Resources and Environmental Protection Act (Refs & Annos)
Article II. Pollution Control
Chapter 4. Pollution Prevention
Part 147. Chemical Substances (Refs & Annos)
Subpart 1. Perfluoroalkyl and Polyfluoroalkyl Substances (Refs & Annos)

M.C.L.A. 324.14701

324.14701. Definitions

Effective: July 8, 2020
Currentness

Sec. 14701. As used in this subpart:

(a) "Department" means the department of environment, Great Lakes, and energy.

(b) "Fire chief" means that term as defined in section 1 of the fire prevention code, 1941 PA 207, MCL 29.1.

(c) "Organized fire department" means that term as defined in section 1 of the fire prevention code, 1941 PA 207, MCL 29.1.

(d) "PFAS" means a perfluoroalkyl or polyfluoroalkyl substance.

Credits
P.A.1994, No. 451, § 14701, added by P.A.2020, No. 132, Imd. Eff. July 8, 2020.

M. C. L. A. 324.14701, MI ST 324.14701
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 324. Natural Resources and Environmental Protection
Natural Resources and Environmental Protection Act (Refs & Annos)
Article II. Pollution Control
Chapter 4. Pollution Prevention
Part 147. Chemical Substances (Refs & Annos)
Subpart 1. Perfluoroalkyl and Polyfluoroalkyl Substances (Refs & Annos)

M.C.L.A. 324.14703

324.14703. Use of firefighting foam containing PFAS; reporting requirements

Effective: July 8, 2020
Currentness

Sec. 14703. Immediately after the end of a fire or other incident at which an organized fire department uses firefighting foam containing intentionally added PFAS, the fire chief shall report the incident to the Michigan pollution emergency alert system.

Credits
P.A.1994, No. 451, § 14703, added by P.A.2020, No. 132, Imd. Eff. July 8, 2020.

M. C. L. A. 324.14703, MI ST 324.14703
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 324. Natural Resources and Environmental Protection
Natural Resources and Environmental Protection Act (Refs & Annos)
Article II. Pollution Control
Chapter 4. Pollution Prevention
Part 147. Chemical Substances (Refs & Annos)
Subpart 1. Perfluoroalkyl and Polyfluoroalkyl Substances (Refs & Annos)

M.C.L.A. 324.14705

324.14705. Collection program for firefighting foam concentrate containing PFAS

Effective: July 8, 2020
Currentness

Sec. 14705. The department shall establish a collection program for firefighting foam concentrate containing intentionally added PFAS and establish guidelines for the program. Under the program, the department shall accept the foam concentrate free of charge and properly dispose of the foam concentrate. The program is contingent on legislative appropriations to cover program costs.

Credits
P.A.1994, No. 451, § 14705, added by P.A.2020, No. 132, Imd. Eff. July 8, 2020.

M. C. L. A. 324.14705, MI ST 324.14705
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 408. Labor
Michigan Occupational Safety and Health Act (Refs & Annos)

M.C.L.A. 408.1014r

408.1014r. Use of firefighting foam; promulgation of rules

Effective: July 31, 2020
Currentness

Sec. 14r. (1) The director shall promulgate rules regarding a firefighter's use of firefighting foam concentrate. The rules may only include the following:

(a) The best practices regarding proper use, handling, and storage of firefighting foam concentrate.

(b) The best health practices including, but not limited to, all of the following:

(*i*) Containment and handling of PFAS-contaminated materials, including a firefighter's equipment, until they are disposed of pursuant to the natural resources and environmental protection act, 1994 PA 451, MCL 324.101 to 324.90106.

(*ii*) Decontamination of a firefighter's body and equipment following the use of firefighting foam.

(c) A prohibition on the use of firefighting foam concentrate containing intentionally added PFAS by a firefighter for training purposes.

(d) A prohibition on the use of firefighting foam concentrate containing intentionally added PFAS by a firefighter for equipment calibration purposes after January 1, 2020, unless 1 or more of the following apply:

(*i*) The calibration is otherwise required by law.

(*ii*) The facility where the calibration will take place has implemented measures that comply with the rules promulgated under this section.

(2) As used in this section:

(a) “Firefighter” means either of the following:

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(*i*) That term as defined in section 2 of the firefighters training council act, 1966 PA 291, MCL 29.362.

(*ii*) An individual employed by a person and who in that employment is knowledgeable, trained, and skilled in at least basic firefighting operations.

(b) "PFAS" means a perfluoroalkyl or polyfluoroalkyl substance.

Credits
P.A.1974, No. 154, § 14r, added by P.A.2020, No. 143, Imd. Eff. July 31, 2020.

M. C. L. A. 408.1014r, MI ST 408.1014r
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.931

460.931. Short title

Effective: December 14, 2010
Currentness

Sec. 1. This act shall be known and may be cited as the "property assessed clean energy act".

Credits
P.A.2010, No. 270, § 1, Imd. Eff. Dec. 14, 2010.

M. C. L. A. 460.931, MI ST 460.931
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.933

460.933. Definitions

Effective: February 13, 2024
Currentness

Sec. 3. As used in this act:

(a) "Anaerobic digester" means a facility that uses microorganisms to break down biodegradable material in the absence of oxygen, producing methane and an organic product.

(b) "Anaerobic digester energy system" means an anaerobic digester and the devices used to generate electricity or heat from methane produced by the anaerobic digester or to store the methane for the future generation of electricity or heat.

(c) "District" means a district that is created by a local unit of government under a property assessed clean energy program and that lies within the local unit of government's jurisdictional boundaries. A local unit of government may create more than 1 district under the program, and districts may be separate, overlapping, or coterminous.

(d) "Energy efficiency improvement" means the acquisition, installation, replacement, or modification of equipment, devices, or materials intended to decrease energy consumption, including, but not limited to, any of the following:

(*i*) Insulation in walls, roofs, floors, foundations, or heating and cooling distribution systems.

(*ii*) Storm windows and doors; multi-glazed windows and doors; heat-absorbing or heat-reflective glazed and coated window and door systems; and additional glazing, reductions in glass area, and other window and door system modifications that reduce energy consumption.

(*iii*) Automated energy control systems.

(*iv*) Heating, ventilating, or air-conditioning and distribution systems.

(*v*) Caulking, weather-stripping, or air sealing.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(*vi*) Lighting fixtures.

(*vii*) Energy recovery systems.

(*viii*) Day lighting systems.

(*ix*) Electrical wiring or outlets to charge a motor vehicle that is fully or partially powered by electricity.

(*x*) Measures to reduce the usage of water or increase the efficiency of water usage.

(*xi*) Any other equipment, devices, or materials approved as a utility cost-savings measure by the governing body.

(e) "Energy project" means any of the following:

(*i*) An energy efficiency improvement.

(*ii*) The acquisition, installation, replacement, or modification of a renewable energy system or anaerobic digester energy system.

(f) "Environmental hazard project" means the acquisition, installation, replacement, or modification of equipment, devices, or materials intended to address environmental hazards, including, but not limited to, measures to do any of the following:

(*i*) Mitigate lead, heavy metal, or PFAS contamination in potable water systems.

(*ii*) Mitigate the effects of floods or drought.

(*iii*) Increase the resistance of property against severe weather.

(*iv*) Mitigate lead paint contamination.

(g) "Governing body" means the county board of commissioners of a county, the township board of a township, or the council or other similar elected legislative body of a city or village.

(h) "Local unit of government" means a county, township, city, or village.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(i) “New construction energy project” means an energy project to which either of the following applies:

(*i*) It occurs at a newly constructed building or other structure.

(*ii*) It consists of significant modifications to an existing building or other structure.

(j) “Person” means an individual, firm, partnership, association, corporation, unincorporated joint venture, or trust, organized, permitted, or existing under the laws of this state or any other state, including, but not limited to, a federal corporation, or a combination thereof. However, person does not include a local unit of government.

(k) “Project” means an environmental hazard project or energy project.

(*l*) “Property” means any of the following privately owned real property located within the local unit of government:

(*i*) Commercial property.

(*ii*) Industrial property.

(*iii*) Agricultural property.

(m) “Property assessed clean energy program” or “program” means a program as described in section 5(2). [1]

(n) “Record owner” means the person or persons possessed of the most recent fee title or land contract vendee's interest in property as shown by the records of the county register of deeds.

(o) “Renewable energy resource” means a resource that naturally replenishes over a human, rather than a geological, time frame and whose conversion to a usable form of energy minimizes the output of toxic materials. Renewable energy resource does not include petroleum, nuclear material, natural gas, or coal. Renewable energy resource includes, but is not limited to, all of the following:

(*i*) Biomass.

(*ii*) Solar and solar thermal energy.

(*iii*) Wind energy.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(*iv*) Geothermal energy.

(*v*) Methane gas captured from a landfill.

(p) "Renewable energy system" means a fixture, product, device, or interacting group of fixtures, products, or devices on the customer's side of the meter that use 1 or more renewable energy resources to generate electricity. Renewable energy system includes a biomass stove but does not include an incinerator or digester.

Credits

P.A.2010, No. 270, § 3, Imd. Eff. Dec. 14, 2010. Amended by P.A.2017, No. 242, Eff. March 21, 2018; P.A.2023, No. 107, Eff. Feb. 13, 2024.

Footnotes

1 M.C.L.A. § 460.935.

M. C. L. A. 460.933, MI ST 460.933
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.935

460.935. Establishment of property assessed clean energy program; creation of districts; contract with property owner to finance projects

Effective: February 13, 2024
Currentness

Sec. 5. (1) Pursuant to section 7, [1] a local unit of government may establish a property assessed clean energy program and may create a district or districts under the program.

(2) Under a property assessed clean energy program, the local unit of government may enter into a contract with the record owner of property within a district to finance or refinance 1 or more projects on the property. The contract may provide for the repayment of the cost of a project through assessments on the property benefited. The financing or refinancing may include the cost of materials and labor necessary for the project and the amount of permit fees, inspection fees, application and administrative fees, bank fees, or any other fees that may be incurred by the record owner for the installation on a specific or pro rata basis, as determined by the local unit of government.

Credits
P.A.2010, No. 270, § 5, Imd. Eff. Dec. 14, 2010. Amended by P.A.2023, No. 107, Eff. Feb. 13, 2024.

Footnotes

1 M.C.L.A. § 460.937.

M. C. L. A. 460.935, MI ST 460.935
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.937

460.937. Resolution establishing property assessed clean energy program; adoptions; procedure; amendment

Effective: February 13, 2024
Currentness

Sec. 7. (1) To establish a property assessed clean energy program, a governing body shall take the following actions in the following order:

(a) Adopt a resolution of intent that includes all of the following:

(*i*) A finding that the financing of projects is a valid public purpose.

(*ii*) A statement of intent to provide funds for projects, which may be repaid by assessments on the property benefited, with the agreement of the record owner.

(*iii*) A description of the proposed arrangements for financing the program.

(*iv*) The types of projects that may be financed.

(*v*) Reference to a report on the proposed program as described in section 9(1) [1] and a location where the report is available pursuant to section 9(2).

(*vi*) The time and place for a public hearing on the proposed program.

(b) Hold a public hearing at which the public may comment on the proposed program, including the report described in section 9(1).

(c) Adopt a resolution establishing the program and setting forth its terms and conditions, including all of the following:

(*i*) Matters required by section 9(1) to be included in the report. For this purpose, the resolution may incorporate the report or an amended version of the report by reference.

(*ii*) A description of aspects of the program that may be amended without holding a new public hearing and aspects that may be amended only after a new public hearing is held.

(2) The governing body may amend a property assessed clean energy program by resolution. Before adopting the resolution, the governing body shall hold a public hearing if required under subsection (1)(c).

Credits

P.A.2010, No. 270, § 7, Imd. Eff. Dec. 14, 2010. Amended by P.A.2023, No. 107, Eff. Feb. 13, 2024.

Footnotes

1 M.C.L.A. § 460.939.

M. C. L. A. 460.937, MI ST 460.937
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.939

460.939. Report on proposed property assessed clean energy program; contents; availability

Effective: February 13, 2024
Currentness

Sec. 9. (1) The report on the proposed property assessed clean energy program required under section 7 [1] shall include all of the following:

(a) A form of contract between the local unit of government and the record owner governing the terms and conditions of financing and assessment under the program.

(b) Identification of an official authorized to enter into a program contract on behalf of the local unit of government.

(c) A maximum aggregate annual dollar amount for all financing to be provided by the local unit of government under the program.

(d) An application process and eligibility requirements for financing projects.

(e) Methods for determining repayment periods, the maximum amount of an assessment, and interest rates on assessment installments.

(f) An explanation of how assessments will be made and collected consistent with section 13(2). [2]

(g) A plan for raising capital to finance improvements under the program. The plan may include any of the following:

(*i*) The sale of bonds or notes, subject to section 15. [3]

(*ii*) Amounts to be advanced by the local unit of government through funds available to it from any other source.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(*iii*) Owner-arranged financing from a commercial lender. Under owner-arranged financing, the local unit of government may impose an assessment pursuant to section 11[4] and forward payments to the commercial lender or the record owner may pay the commercial lender directly.

(h) Procedures to determine in the future or, to the extent known, information regarding each of the following:

(*i*) Any reserve fund or funds to be used as security for bonds or notes described in subdivision (g).

(*ii*) Any application, administration, or other fees to be charged to record owners participating in the program that will be used to finance costs incurred by the local unit of government as a result of the program.

(i) A requirement that the term of an assessment not exceed the useful life of the project paid for by the assessment.

(j) A requirement for an appropriate ratio of the amount of the assessment to the assessed value of the property.

(k) A requirement that the record owner of property subject to a mortgage obtain written consent from the mortgage holder before participating in the program.

(*l*) Provisions for marketing and participant education.

(m) Provisions for an adequate debt service reserve fund.

(n) Quality assurance and antifraud provisions.

(o) A requirement that a baseline energy audit or baseline energy modeling be conducted before an energy project is undertaken, to establish future energy savings. After the energy project is completed, the local unit of government shall obtain verification that the renewable energy system, anaerobic digester energy system, or energy efficiency improvement was properly installed and is operating as intended.

(p) For a project financed with more than $250,000.00 in assessments, both of the following:

(*i*) A requirement for ongoing measurements that establish the savings realized by the record owner from the project.

(*ii*) Unless waived by the record owner, a requirement that the contractor guarantee to the record owner that the project will achieve a savings-to-investment ratio greater than 1 and agree to pay the record owner, on an annual basis, any shortfall in savings below this level. This subparagraph does not apply to a new construction energy project.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(q) For a new construction energy project, a requirement that the building or other structure exceed applicable requirements of the Michigan uniform energy code, parts 10 and 10a of the construction code, R 408.31059 to 408.31071a and 408.31087 to 408.31099 of the Michigan Administrative Code.

(2) The local unit of government shall make the report available for review on the local unit of government's website or at the office of the clerk or the official authorized to enter into contracts on behalf of the local unit of government under the property assessed clean energy program.

Credits

P.A.2010, No. 270, § 9, Imd. Eff. Dec. 14, 2010. Amended by P.A.2017, No. 242, Eff. March 21, 2018; P.A.2023, No. 106, Eff. Feb. 13, 2024.

Footnotes

1 M.C.L.A. § 460.937.

2 M.C.L.A. § 460.943.

3 M.C.L.A. § 460.945.

4 M.C.L.A. § 460.941.

M. C. L. A. 460.939, MI ST 460.939
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.941

460.941. Imposition of assessment; contract with owner; conditions

Effective: February 13, 2024
Currentness

Sec. 11. (1) A local unit of government may impose an assessment under a property assessed clean energy program only pursuant to a written contract entered into under section 5(2) [1] with the record owner of the property to be assessed.

(2) Before entering into a contract with the record owner under section 5(2), the local unit of government must verify that none of the following are delinquent with respect to the property:

(a) A tax, special assessment, or water or sewer charge.

(b) An assessment for another project under a property assessed clean energy program.

Credits
P.A.2010, No. 270, § 11, Imd. Eff. Dec. 14, 2010. Amended by P.A.2023, No. 107, Eff. Feb. 13, 2024.

Footnotes

1 M.C.L.A. § 460.935.

M. C. L. A. 460.941, MI ST 460.941
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.943

460.943. Collection of assessments; liens; installments

Effective: February 13, 2024
Currentness

Sec. 13. (1) An assessment imposed under a property assessed clean energy program, including any interest on the assessment and any penalty, constitute a lien against the property on which the assessment is imposed until the assessment, including any interest or penalty, is paid in full. The lien runs with the property and has the same priority and status as other property tax and assessment liens. The local unit of government has all rights in the case of delinquency in the payment of an assessment as it does with respect to delinquent property taxes. When the assessment, including any interest or penalty, is paid, the local unit of government shall remove the lien from the property.

(2) Installments of assessments due under a property assessed clean energy program shall be managed as provided in 1 of the following:

(a) Included in each summer and winter tax bill issued under the general property tax act, 1893 PA 206, MCL 211.1 to 211.155, and collected at the same time and in the same manner as taxes collected under that act.

(b) Billed and collected as provided in a special assessment ordinance of general applicability adopted by the local unit of government pursuant to state law or local charter.

Credits
P.A.2010, No. 270, § 13, Imd. Eff. Dec. 14, 2010. Amended by P.A.2023, No. 107, Eff. Feb. 13, 2024.

M. C. L. A. 460.943, MI ST 460.943
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.945

460.945. Issuance of bonds or notes to finance projects

Effective: February 13, 2024
Currentness

Sec. 15. (1) A local unit of government may issue bonds or notes to finance projects under a property assessed clean energy program.

(2) Bonds or notes issued under subsection (1) shall not be general obligations of the local unit of government, but shall be secured by 1 or more of the following as provided by the governing body in the resolution or ordinance approving the bonds or notes:

(a) Payments of assessments on benefited property within the district or districts specified.

(b) Reserves established by the local unit of government from grants, bond or note proceeds, or other lawfully available funds.

(c) Municipal bond insurance, lines or letters of credit, public or private guaranties, standby bond purchase agreements, collateral assignments, mortgages, or any other available means of providing credit support or liquidity, including, but not limited to, arrangements described in section 315 of the revised municipal finance act, 2001 PA 34, MCL 141.2315.

(d) Tax increment revenues that may be lawfully available for that purpose.

(e) Any other resources lawfully available for that purpose.

(3) A pledge of assessments, funds, or contractual rights made by a governing body in connection with the issuance of bonds or notes by a local unit of government under this act constitutes a statutory lien on the assessments, funds, or contractual rights so pledged in favor of the person or persons to whom the pledge is given, without further action by the governing body. The statutory lien is valid and binding against all other persons, with or without notice.

(4) Bonds or notes of 1 series issued under this act may be secured on a parity with bonds or notes of another series issued by the local unit of government pursuant to the terms of a master indenture or master resolution entered into or adopted by the governing body of the local unit of government.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(5) Bonds or notes issued under this act are subject to the revised municipal finance act, 2001 PA 34, MCL 141.2101 to 141.2821.

(6) Bonds or notes issued under this act, and interest payable on the bonds and notes, are exempt from taxation by this state and its political subdivisions.

(7) Bonds or notes issued under this act further essential public and governmental purposes, including, but not limited to, reduced energy costs, reduced greenhouse gas emissions, improved public health, protection against climate hazards and other environmental hazards, economic stimulation and development, improved property valuation, and increased employment.

Credits

P.A.2010, No. 270, § 15, Imd. Eff. Dec. 14, 2010. Amended by P.A.2023, No. 107, Eff. Feb. 13, 2024.

M. C. L. A. 460.945, MI ST 460.945
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.947

460.947. Electric energy efficiency improvements; exemption from energy optimization charges; conditions

Effective: February 13, 2024
Currentness

Sec. 17. A commercial or industrial electric customer that installs or modifies an electric energy efficiency improvement under a property assessed clean energy program is exempt from the energy optimization charges the customer would otherwise incur under section 89 or 91 of the clean and renewable energy and energy waste reduction act, 2008 PA 295, MCL 460.1089 and 460.1091, if the customer conducts a self-directed energy waste reduction plan under and subject to the applicable requirements of section 93 of the clean and renewable energy and energy waste reduction act, 2008 PA 295, MCL 460.1093. These requirements include, but are not limited to, the requirement that the plan provide for aggregate energy savings that each year meet or exceed the energy waste reduction standards based on the electricity purchases in the previous year for the site or sites covered by the self-directed plan.

Credits
P.A.2010, No. 270, § 17, Imd. Eff. Dec. 14, 2010. Amended by P.A.2023, No. 107, Eff. Feb. 13, 2024.

M. C. L. A. 460.947, MI ST 460.947
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Compiled Laws Annotated
Chapter 460. Public Utilities
Property Assessed Clean Energy Act (Refs & Annos)

M.C.L.A. 460.949

460.949. Cooperation between local governments and others; hearing requirements

Effective: December 14, 2010
Currentness

Sec. 19. (1) A local unit of government may join with any other local unit of government, or with any person, or with any number or combination thereof, by contract or otherwise as may be permitted by law, for the implementation of a property assessed clean energy program, in whole or in part.

(2) If a property assessed clean energy program is implemented jointly by 2 or more local units of government pursuant to subsection (1), a single public hearing held jointly by the cooperating local units of government is sufficient to satisfy the requirements of section 7(1)(b). [1]

Credits
P.A.2010, No. 270, § 19, Imd. Eff. Dec. 14, 2010.

Footnotes

1 M.C.L.A. § 460.937.

M. C. L. A. 460.949, MI ST 460.949
The statutes are current through P.A.2024, No. 148, of the 2024 Regular Session, 102nd Legislature.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Administrative Code
Environment, Great Lakes and Energy
Drinking Water and Environmental Health Division
Supplying Water to the Public
Part 3. Variances, Exemptions, and Treatment Technologies

Mich. Admin. Code R 325.10308b

R 325.10308b. Best available technology.

Effective: August 3, 2020
Currentness

Rule 308b. (1) The department identifies the following as the best technology, treatment technique, or other means generally available for achieving compliance with the MCL:

(a) For organic contaminants in R 325.10604b, R325.10604d, and R 325.10604g the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX), as listed in table 1 of this rule.

Table 1 Best available technologies for organic contaminants

Contaminant	GAC	PTA	OX
Alachlor	x		
Aldicarb	x		
Aldicarb sulfone	x		
Aldicarb sulfoxide	x		
Atrazine	x		
Benzene	x	x	
Benzo(a)pyrene	x		
Carbofuran	x		
Carbon tetrachloride	x	x	
Chlordane	x		
Dalapon	x		

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

2,4 D	x		
Di (2 ethylhexyl)adipate	x	x	
Di (2 ethylhexyl)phthalate	x		
Dibromochloropropane (DBCP)	x	x	
o Dichlorobenzene	x	x	
para Dichlorobenzene	x	x	
1,2 Dichloroethane	x	x	
1,1 Dichloroethylene	x	x	
cis 1,2 Dichloroethylene	x	x	
trans 1,2 Dichloroethylene	x	x	
Dichloromethane		x	
1,2 Dichloropropane	x	x	
Dinoseb	x		
Diquat	x		
Endothall	x		
Endrin	x		
Ethylbenzene	x	x	
Ethylene Dibromide (EDB)	x	x	
Glyphosate			x
Heptachlor	x		
Heptachlor epoxide	x		
Hexachlorobenzene	x		
Hexachlorocyclopentadiene	x	x	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	x [1]		
Lindane	x		
Methoxychlor	x		

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Monochlorobenzene	x	x
Oxamyl (Vydate)	x	
Pentachlorophenol	x	
Perfluorobutanesulfonic acid (PFBS)	x **1	
Perfluorohexanesulfonic acid (PFHxS)	x **1	
Perfluorohexanoic acid (PFHxA)	x **1	
Perfluorononanoic acid (PFNA)	x **1	
Perfluorooctanesulfonic acid (PFOS)	x **1	
Perfluorooctanoic acid (PFOA)	x **1	
Picloram	x	
Polychlorinated biphenyls(PCB)	x	
Simazine	x	
Styrene	x	x
2,3,7,8 TCDD (Dioxin)	x	
Tetrachloroethylene	x	x
Toluene	x	x
Toxaphene	x	
2,4,5 TP (Silvex)	x	
1,2,4 Trichlorobenzene	x	x
1,1,1 Trichloroethane	x	x
1,1,2 Trichloroethane	x	x
Trichloroethylene	x	x
Vinyl chloride		x
Xylene	x	x

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

1 Best available technology is GAC or an equally efficient technology.

(b) For inorganic contaminants in R 325.10604c, the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are listed in table 2 of this rule. The affordable technology, treatment technique, or other means available to supplies serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for arsenic are listed in table 3 of this rule.

Table 2 Best available technologies for inorganic contaminants

Chemical name	Best available technologies
Antimony	2,7
Arsenic [4]	1,2, 5,6,7,9,11 [5]
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7
Chromium	2,5,6 [2] ,7
Cyanide	5,7,10
Mercury	2 [1] ,4,6 [1] ,7 [1]
Nickel	5,6,7
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2 [3] ,6,7,9
Thallium	1,5

1 Best available technology only if influent Hg concentrations are 10 µg/l or less.

2 Best available technology for chromium III only.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

3 Best available technology for selenium IV only.

4 BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

5 To obtain high removals, iron to arsenic ratio must be at least 20:1.

Key to best available technologies in table:

1 = activated alumina

2 = coagulation/filtration (not BAT for supplies with fewer than 500 service connections)

3 = direct and diatomite filtration

4 = granular activated carbon

5 = ion exchange

6 = lime softening (not BAT for supplies than 500 service connections)

7 = reverse osmosis

8 = corrosion control

9 = electrodialysis

10 = alkaline chlorination (pH greater than or equal to 8.5)

11 = oxidation/filtration

Table 3 Small supplies compliance technologies (SSCTs) for arsenic [1]

Small supply compliance technology	Affordable for listed small supply categories. [2]
Activated alumina (centralized)	All size categories.
Activated alumina (point-of-use) [3]	All size categories.
Coagulation/filtration	501-3,300, 3,301-10,000.
Coagulation-assisted microfiltration	501-3,300, 3,301-10,000.
Electrodialysis reversal	501-3,300, 3,301-10,000.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Enhanced coagulation/filtration	All size categories.
Enhanced lime softening (pH more than 10.5)	All size categories.
Ion exchange	All size categories.
Lime softening	501-3,300, 3,301-10,000.
Oxidation/filtration [4]	All size categories.
Reverse osmosis (centralized)	501-3,300, 3,301-10,000.
Reverse osmosis (point-of-use) [3]	All size categories.

1 SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

2 Three categories of small supplies are: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 5 fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.

3 POU must not be used to obtain a variance.

4 To obtain high removals, iron to arsenic ratio must be at least 20:1.

(c) For radionuclide contaminants in R 325.10603, the best available technologies, treatment techniques, or other means available for achieving compliance with the MCLs are listed in table 4 for all size supplies. The affordable technology, treatment technique, or other means available for achieving compliance with the maximum contaminant level are listed in table 5 for supplies serving 10,000 or fewer people as categorized in table 6.

Table 4 Best available technologies for radionuclide contaminants

Contaminant	**Best available technologies.**
Combined radium 226 and radium 228	Ion exchange, reverse osmosis, lime softening.
Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration.
Gross alpha particle activity (excluding radon and uranium)	Reverse osmosis.
Beta particle and proton radioactivity	Ion exchange, reverse osmosis.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Table 5 List of small supplies compliance technologies for radionuclides and limitations to use

Unit Technologies	Limitations (see footnotes)	Operator skill level required *	Raw water quality range and considerations.
1. Ion exchange	(a)	Intermediate	All ground waters.
2. Reverse osmosis (RO)	(b)	Advanced	Surface waters usually require pre-filtration.
3. Lime softening	(c)	Advanced	All waters.
4. Green sand filtration	(d)	Basic	
5. Co-precipitation and Barium sulfate	(e)	Intermediate to Advanced	Ground waters with suitable water quality.
6. Electrodialysis/ electrodialysis reversal	Not applicable	Basic to intermediate	All ground waters.
7. Pre-formed hydrous Manganese oxide filtration.	(f)	Intermediate	All ground waters.
8. Activated alumina	(a), (g)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency.
9. Enhanced coagulation/ filtration	(h)	Advanced	Can treat a wide range of water qualities.

* An operator with a basic skill level has minimal experience in the water treatment field and can perform the ne system operation and monitoring if provided with proper instruction. The operator is capable of reading and following

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

directions. An operator with an intermediate skill level understands the principles of water treatment and has a kno of the regulatory framework. The operator is capable of making system changes in response to source water fluctuati operator with an advanced skill level possesses a thorough understanding of the principles of system operation. The ope knowledgeable in water treatment and regulatory requirements. The operator may, however, have advanced knowledge the particular treatment technology. The operator seeks information, remains informed, and reliably interprets and resp water fluctuations and system intricacies.

Limitations Footnotes: Technologies for Radionuclides:

a. The regeneration solution contains high concentrations of the contaminant ions. Disposal options must be carefully considered before choosing this technology.

b. Reject water disposal options must be carefully considered before choosing this technology.

c. The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.

d. Removal efficiencies may vary depending on water quality.

e. This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.

f. This technology is most applicable to small systems that already have filtration in place.

g. Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.

h. Assumes modification to a coagulation/filtration process already in place.

Table 6 Compliance technologies by supply size category for radionuclide

Requirements

Contaminant	**Compliance technologies*** **for supply size categories (population served)**		
	25-500	501-3,300	3,301 -- 10,000
1. Combined radium 226 and radium 228	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6, 7

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

2. Gross alpha particle activity	2	2	2
3. Beta particle activity and photon activity	1, 2	1, 2	1, 2
4. Uranium	1, 8, 9	1, 2, 3, 8, 9	1, 2, 3, 8, 9

* Numbers correspond to those technologies listed in Table 5 of this rule.

(2) The department shall require community water supplies and nontransient, noncommunity water supplies to employ a treatment method identified in subrule (1) of this rule as a condition for granting a variance, except as provided in subrule (3) of this rule. If, after the treatment method is installed in the system, the supply cannot meet the MCL, then the supply is eligible for a variance under this part and section 20 of the act, MCL 325.1020.

(3) If a supply demonstrates through comprehensive engineering assessments, which may include pilot plant studies, that the treatment methods identified in subrule (1) of this rule may only achieve a de minimis reduction in contaminants, then the department may issue a schedule of compliance that requires the supply being granted the variance to examine other treatment methods as a condition of obtaining the variance.

(4) If the department determines that a treatment method identified in subrule (3) of this rule is technically feasible, then the department may require the supply to use that treatment method in connection with a compliance schedule issued under section 20 of the act, MCL 325.1020. The department's determination must be based on studies by the supply and other relevant information.

(5) The department may require a community or noncommunity supply to use point-of-use devices, point-of-entry devices, or other means as a condition of granting a variance or an exemption from the requirements of R 325.10603, R 325.10604b, R 325.10604c, R 325.10604d, or R325.10604g to avoid an unreasonable risk to health. The department may require a public water supply to use point-of-use devices or other means, but not point-of-entry devices, as a condition for granting an exemption from corrosion control treatment requirements for lead and copper in R 325.10604f(2) and (3) to avoid an unreasonable risk to health. The department may require a public water supply to use point-of-entry devices as a condition for granting an exemption from the source water and lead service line replacement requirements for lead and copper under R 325.10604f(4) and (5) to avoid an unreasonable risk to health, provided the supply demonstrates that the device will not cause an increased corrosion of lead and copper bearing materials located between the device and the tap that may increase contaminant levels at the tap.

(6) Community or noncommunity water supplies that use point-of-use or point-of-entry devices under this rule shall meet the conditions in R 325.10313.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Credits

History: 1989 AACS; 1993 AACS; 1994 AACS; 1998 AACS; 2003 AACS; 2005 AACS; 2009 AACS; 2020 MR 14, Eff. Aug. 3, 2020.

(By authority conferred on the department of environment, Great Lakes, and energy by section 5 of the safe drinking water act, 1976 PA 399, MCL 325.1005)

Current with amendments included in the Michigan Register, Issue Number 18-2024, dated October 15, 2024

Footnotes

1 1 Best available technology is GAC or an equally efficient technology.

1 1 Best available technology only if influent Hg concentrations are 10 µg/l or less.

2 2 Best available technology for chromium III only.

3 3 Best available technology for selenium IV only.

4 4 BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

5 5 To obtain high removals, iron to arsenic ratio must be at least 20:1.

1 1 SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

2 2 Three categories of small supplies are: (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300, but fewer than 10,001.

3 3 POU must not be used to obtain a variance.

4 4 To obtain high removals, iron to arsenic ratio must be at least 20:1.

* * An operator with a basic skill level has minimal experience in the water treatment field and can perform the necessary system operation and monitoring if provided with proper instruction. The operator is capable of reading and following explicit directions. An operator with an intermediate skill level understands the principles of water treatment and has a knowledge of the regulatory framework. The operator is capable of making system changes in response to source water fluctuations. An operator with an advanced skill level possesses a thorough understanding of the principles of system operation. The operator is knowledgeable in water treatment and regulatory requirements. The operator may, however, have advanced knowledge of only the particular treatment technology. The operator seeks information, remains informed, and reliably interprets and responds to water fluctuations and system intricacies.

* * Numbers correspond to those technologies listed in Table 5 of this rule.

Mich. Admin. Code R 325.10308b, MI ADC R 325.10308b

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Mich. Admin. Code R 325.10604g

R 325.10604g. MCLs for per- and polyfluoroalkyl substances.

Effective: August 3, 2020
Currentness

Rule 604g. (1) The maximum contaminant levels and effective dates for per- and polyfluoroalkyl substances in table 1 of this rule apply to community and nontransient noncommunity water supplies.

Table 1 MCLs for per and polyfluoroalkyl substances

Contaminant	Maximum Contaminant Level in ng/l	Effective Date
Hexafluoropropylene oxide dimer acid (HFPO-DA)	370	[effective date of this rule]
Perfluorobutane sulfonic acid (PFBS)	420	[effective date of this rule]
Perfluorohexane sulfonic acid (PFHxS)	51	[effective date of this rule]
Perfluorohexanoic acid (PFHxA)	400,000	[effective date of this rule]
Perfluorononanoic acid (PFNA)	6	[effective date of this rule]
Perfluorooctane sulfonic acid (PFOS)	16	[effective date of this rule]
Perfluorooctanoic acid (PFOA)	8	[effective date of this rule]

(2) Compliance with the MCLs in table 1 of this rule must be determined based on the analytical results obtained at each sampling point. If 1 sampling point is in violation of an MCL, then the supply is in violation of the MCL. All of the following provisions apply:

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(a) For supplies monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

(b) Supplies monitoring annually whose sample result exceeds an MCL in table 1 of this rule shall begin quarterly sampling. Compliance with the MCL must be based on the running annual average. For the purpose of calculating the running annual average, the initial exceedance must be the result for the first quarter. If the department requires a confirmation sample under R 325.10717d(12), then the average of the initial exceedance and the confirmation sample must be the result for the first quarter, unless the department determines a sample should be excluded per R 325.10717d(12). The supply shall not be in violation of the MCL until it has completed 1 year of quarterly sampling.

(c) If any sample result causes the running annual average to exceed the MCL at any sampling point, then the supply is out of compliance with the MCL immediately.

(d) If a supply fails to collect the required number of samples, then compliance must be based on the total number of samples collected.

(e) If a sample result is less than the reporting limit, then zero must be used to calculate the annual average.

Credits
History: 2020 MR 14, Eff. Aug. 3, 2020.

(By authority conferred on the department of environment, Great Lakes, and energy by section 5 of the safe drinking water act, 1976 PA 399, MCL 325.1005)

Current with amendments included in the Michigan Register, Issue Number 18-2024, dated October 15, 2024

Mich. Admin. Code R 325.10604g, MI ADC R 325.10604g

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Administrative Code
Environment, Great Lakes and Energy
Drinking Water and Environmental Health Division
Supplying Water to the Public
Part 27. Laboratory Certification

Mich. Admin. Code R 325.12708

R 325.12708. Certification for PFAS analyses.

Effective: August 3, 2020
Currentness

Rule 2708. To qualify for certification to conduct analyses for the PFASs in table 1 of R 325.10604g, a laboratory must be in compliance with the following provisions:

(a) Samples must be collected and analyzed in accordance with EPA method 537.1 or other methods as approved by the department.

(b) The minimum reporting limit must be 2 ng/l.

(c) Analytical results must be reported to the nearest ng/l.

(d) The laboratory must analyze performance evaluation samples that include the PFASs in table 1 of this rule and are acquired from a third party proficiency test provider approved by the department at least once per year.

(e) For each regulated PFAS contaminant included in the performance evaluation sample, the laboratory must achieve quantitative results on the analyses that are within the acceptance limits listed in table 1 of this rule.

Table 1 Acceptance limits

Contaminant	Chemical Abstract Services Registry Number	Acceptance Limits (percent)
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	± 30% (GV) [1]
Perfluorobutane sulfonic acid (PFBS)	375-73-5	± 30% (GV) [1]

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Perfluorohexane sulfonic acid (PFHxS)	355-46-4	± 30% (GV) [1]
Perfluorohexanoic acid (PFHxA)	307-24-4	± 30% (GV) [1]
Perfluorononanoic acid (PFNA)	375-95-1	± 30% (GV) [1]
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	± 30% (GV) [1]
Perfluorooctanoic acid (PFOA)	335-67-1	± 30% (GV) [1]

1 Gravimetric value

Credits

History: 2020 MR 14, Eff. Aug. 3, 2020.

(By authority conferred on the department of environment, Great Lakes, and energy by section 5 of the safe drinking water act, 1976 PA 399, MCL 325.1005)

Current with amendments included in the Michigan Register, Issue Number 18-2024, dated October 15, 2024

Footnotes

1 1 Gravimetric value

Mich. Admin. Code R 325.12708, MI ADC R 325.12708

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Administrative Code
Environment, Great Lakes and Energy
Drinking Water and Environmental Health Division
Supplying Water to the Public
Part 4. Public Notification and Public Education

Mich. Admin. Code R 325.10401a

R 325.10401a. General public notification requirements.

Effective: August 3, 2020
Currentness

Rule 401a. (1) Each community water supply, nontransient noncommunity water supply, or transient noncommunity water supply shall give notice for violations of the maximum contaminant level (MCL), maximum residual disinfection level (MRDL), treatment technique (TT), monitoring requirements, testing procedures in these rules, and for other situations, as listed in the following provisions:

(a) Violations and other situations requiring public notice, including all of the following:

(i) Failure to comply with an applicable maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL).

(ii) Failure to comply with a prescribed treatment technique (TT).

(iii) Failure to perform water quality monitoring, as required by part 7 of these rules.

(iv) Failure to comply with testing procedures as prescribed by part 6 of these rules.

(b) Variances and exemptions under part 3 of these rules, including both of the following:

(i) Operation under a variance or an exemption.

(ii) Failure to comply with the requirements of a schedule that has been set under a variance or exemption.

(c) Special public notices, including all of the following:

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(i) Occurrence of a waterborne disease outbreak or other waterborne emergency.

(ii) Exceedance of the nitrate MCL by noncommunity water supplies, where granted permission by the department.

(iii) Fluoride level above 2.0 mg/l as specified in R 325.10408a.

(iv) Availability of unregulated contaminant monitoring data.

(v) Other violations and situations that are determined by the department to require a public notice under this part and that are not already listed in table 1 of this rule. The tier assignment for each specific violation or situation requiring a public notice is identified in table 1 of this rule. Community and noncommunity water supplies are also considered "water supplies" or "supplies" in this rule, R 325.10402 to R 325.10407, and R 325.10408a to R 325.10409.

(2) Public notice requirements are divided into 3 tiers to take into account the seriousness of the violation or situation and of the potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in subrule (1) of this rule are determined by the tier to which the violation or situation is assigned. The definition of each tier is provided in the following provisions:

(a) Tier 1 public notice is required for violations and situations that have significant potential to have serious adverse effects on human health as a result of short term exposure.

(b) Tier 2 public notice is required for all other violations and situations that have potential to have serious adverse effects on human health.

(c) Tier 3 public notice is required for all other violations and situations not included in tier 1 and tier 2. The tier assignment for each specific violation or situation is identified in table 1 of this rule.

(3) Supplies shall provide public notice to the following:

(a) Each supply shall provide public notice to persons served by the supply as specified in this part. Supplies that sell or otherwise provide drinking water to other public water supplies, such as to consecutive supplies, shall give public notice to the consecutive supply. The consecutive supply shall provide public notice to the persons it serves.

(b) If a public water supply has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, then the department may grant permission, which must be in writing, to the supply to limit distribution of the public notice to only persons served by that portion of the system that is out of compliance. To be considered physically isolated, the supply shall show that the affected portion of the distribution system is separated from other parts of the distribution system with no interconnections. To be considered hydraulically isolated, the supply

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

shall show that the design of the distribution system or the system operation, or both, created a situation where water in the affected portion is effectively isolated from the water in all other parts of the distribution system because of projected water flow patterns and water pressure zones.

(4) The supply, within 10 days of completing the public notification requirements under this part for the initial public notice and applicable repeat notices, shall submit to the department a certification that it fully complied with the public notification regulations. The supply shall include with this certification a representative copy of each type of notice distributed, published, posted, and made available to the persons served by the supply and to the media.

Table 1 Violations and other situations requiring public notice

Contaminant	**MCL/MRDL/TT violations** [1]		**Monitoring, testing, & reporting procedure violations**	
	Tier of public notice required	Citation	Tier of public notice required	Citation
I. Violations of MCL, MRDL, treatment technique, monitoring and reporting, and testing procedure requirements:				
A. Microbiological contaminants				
Total coliform until March 31, 2016	2	R 325.10602(1)(a) and (b)	3	R 325.10704 to R 325.10707a R 325.10702(2) R 325.10707b(4)
Total coliform (TT violations resulting from failure to perform assessments or corrective actions, monitoring violations, and reporting violations) beginning April 1, 2016	2	R 325.10704j(2)(a)	3	R 325.10704j(3) R 325.10704j(4)(a)

Seasonal supply failure to follow department-approved start-up plan before serving water to the public or failure to provide certification to the department beginning April 1, 2016	2	R 325.10704j(2)(b)	3	R 325.10704j(4)(c)
Fecal coliform/E. coli until March 31, 2016	1	R 325.10602(1)(c)	1, 3 [2]	R 325.10704(3) R 325.10707b(4)
E. coli (MCL, monitoring, and reporting violations) beginning April 1, 2016	1	R 325.10704j(1)	3	R 325.10704j(3)(b) R 325.10704j(4)(a) R 325.10704j(4)(b)
E. coli (TT violations resulting from failure to perform level 2 assessments or corrective action) beginning April 1, 2016	2	R 325.10704j(2)(a)	n/a	n/a
Turbidity (for TT violations resulting from a single exceedance of maximum	2, 1 [3]	R 325.10611b	3	R 325.10605

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

allowable turbidity level)				R 325.10720(2)(a) and (b)
Violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT)	2	R 325.10611, R 325.10611a, and R 325.10611b	3	R 325.10605 R 325.10720(2)(c) and (d)
Violations of disinfection profiling and benchmarking	N/A	N/A	3	R 325.10722
Violations of filter backwash recycling provisions	2	R 325.10611c	3	R 325.11507
Violations of enhanced treatment for cryptosporidium	2	R 325.10611e to R 325.10611m	2, 3	40 CFR 141.701 to 141.705, as adopted by reference in R 325.10720b, R 325.10720c and R 325.10720d. Failure to collect 3 or more samples for Cryptosporidium analysis is a tier 2 violation requiring special notice as required in R 325.10408d. All other monitoring and testing procedure

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

				violations are tier 3.
Violations of rules for ground water supplies subject to R 325.10612	2	R 325.10612b	3	R 325.10739(7) R 325.10739a(5)
B. Inorganic chemicals (IOC)				
Antimony	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Arsenic	2	R 325.10604c(1)	3	R 325.10710(4) and (5) R 325.10605
Asbestos (fibers longer than 10 µm)	2	R 325.10604c(1)	3	R 325.10710(4), (6)
Barium	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Beryllium	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Cadmium	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Chromium (total)	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Cyanide (free)	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Fluoride	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Mercury (inorganic)	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Nitrate (as nitrogen)	1	R 325.10604c(1)	1, 3 [4]	R 325.10710(3), (4), (7), and (9)(b)

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Nitrite (as nitrogen)	1	R 325.10604c(1)	1, 3 [4]	R 325.10710(3), (4), (8), and (9)(b)
Total nitrate and nitrite (as nitrogen)	1	R 325.10604c(1)	3	R 325.10710(4)
Selenium	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
Thallium	2	R 325.10604c(1)	3	R 325.10710(4) and (5)
C. Lead and copper (action level for lead is 0.015 mg/l through December 31, 2024 and 0.012 mg/l beginning January 1, 2025; action level for copper is 1.3 mg/l)				
Lead and copper rule (TT)	2	R 325.10604f(1) -- (5) R 325.10410(2) and (3)	3	R 325.10710a to R 325.10710c and R 325.10605
D. Synthetic organic chemicals (SOC)				
2,4-D	2	R 325.10604d(1)	3	R 325.10717
2,4,5-TP (silvex)	2	R 325.10604d(1)	3	R 325.10717
Alachlor	2	R 325.10604d(1)	3	R 325.10717
Atrazine	2	R 325.10604d(1)	3	R 325.10717
Benzo(a)pyrene (PAHs)	2	R 325.10604d(1)	3	R 325.10717
Carbofuran	2	R 325.10604d(1)	3	R 325.10717
Chlordane	2	R 325.10604d(1)	3	R 325.10717
Dalapon	2	R 325.10604d(1)	3	R 325.10717
Di (2-ethylhexyl) adipate	2	R 325.10604d(1)	3	R 325.10717
Di (2-ethylhexyl) phthalate	2	R 325.10604d(1)	3	R 325.10717
Dibromochloropropane	2	R 325.10604d(1)	3	R 325.10717
Dinoseb	2	R 325.10604d(1)	3	R 325.10717

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Dioxin (2,3,7,8-TCDD)	2	R 325.10604d(1)	3	R 325.10717
Diquat	2	R 325.10604d(1)	3	R 325.10717
Endothall	2	R 325.10604d(1)	3	R 325.10717
Endrin	2	R 325.10604d(1)	3	R 325.10717
Ethylene dibromide	2	R 325.10604d(1)	3	R 325.10717
Glyphosate	2	R 325.10604d(1)	3	R 325.10717
Heptachlor	2	R 325.10604d(1)	3	R 325.10717
Heptachlor epoxide	2	R 325.10604d(1)	3	R 325.10717
Hexachlorobenzene	2	R 325.10604d(1)	3	R 325.10717
Hexachlorocyclo-pentadiene	2	R 325.10604d(1)	3	R 325.10717
Lindane	2	R 325.10604d(1)	3	R 325.10717
Methoxychlor	2	R 325.10604d(1)	3	R 325.10717
Oxamyl (vydate)	2	R 325.10604d(1)	3	R 325.10717
Pentachlorophenol	2	R 325.10604d(1)	3	R 325.10717
Picloram	2	R 325.10604d(1)	3	R 325.10717
Polychlorinated biphenyls [PCBs]	2	R 325.10604d(1)	3	R 325.10717
Simazine	2	R 325.10604d(1)	3	R 325.10717
Toxaphene	2	R 325.10604d(1)	3	R 325.10717
E. Volatile organic chemicals (VOC)				
Benzene	2	R 325.10604b(1)	3	R 325.10716
Carbon tetrachloride	2	R 325.10604b(1)	3	R 325.10716
Chlorobenzene (monochloro-benzene)	2	R 325.10604b(1)	3	R 325.10716

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

O-dichlorobenzene	2	R 325.10604b(1)	3	R 325.10716
P-dichlorobenzene	2	R 325.10604b(1)	3	R 325.10716
1,2-dichloroethane	2	R 325.10604b(1)	3	R 325.10716
1,1-dichloroethylene	2	R 325.10604b(1)	3	R 325.10716
Cis-1,2-dichloroethylene	2	R 325.10604b(1)	3	R 325.10716
Trans-1,2-dichloroethylene	2	R 325.10604b(1)	3	R 325.10716
Dichloromethane	2	R 325.10604b(1)	3	R 325.10716
1,2-dichloropropane	2	R 325.10604b(1)	3	R 325.10716
Ethylbenzene	2	R 325.10604b(1)	3	R 325.10716
Styrene	2	R 325.10604b(1)	3	R 325.10716
Tetrachloro-ethylene	2	R 325.10604b(1)	3	R 325.10716
Toluene	2	R 325.10604b(1)	3	R 325.10716
1,2,4-trichlorobenzene	2	R 325.10604b(1)	3	R 325.10716
1,1,1-trichloroethane	2	R 325.10604b(1)	3	R 325.10716
1,1,2-trichloroethane	2	R 325.10604b(1)	3	R 325.10716
Trichloroethylene	2	R 325.10604b(1)	3	R 325.10716
Vinyl chloride	2	R 325.10604b(1)	3	R 325.10716
Xylenes (total)	2	R 325.10604b(1)	3	R 325.10716
F. per- and polyfluoroalkyl substances (PFAS)				
Hexafluoropropylene oxide dimer acid (HFPO-DA)	2	R 325.10604g(1)	3	R 325.10717d

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Perfluorobutane sulfonic acid (PFBS)	2	R 325.10604g(1)	3	R 325.10717d
Perfluorohexane sulfonic acid (PFHxS)	2	R 325.10604g(1)	3	R 325.10717d
Perfluorohexanoic acid (PFHxA)	2	R 325.10604g(1)	3	R 325.10717d
Perfluorononanoic acid (PFNA)	2	R 325.10604g(1)	3	R 325.10717d
Perfluorooctane sulfonic acid (PFOS)	2	R 325.10604g(1)	3	R 325.10717d
Perfluorooctanoic acid (PFOA)	2	R 325.10604g(1)	3	R 325.10717d
G. Radioactive contaminants				
Beta/photon emitters	2	R 325.10603(2)(c)	3	R 325.10605 R 325.10725 R 325.10730
Alpha emitters (gross alpha)	2	R 325.10603(2)(b)	3	R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Combined radium (226 & 228)	2	R 325.10603(2)(a)	3	R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729
Uranium (pCi/L)	2	R 325.10603(2)(d)	3	R 325.10605 R 325.10725 R 325.10726 R 325.10728 R 325.10729
H. Disinfection byproducts (DBP), byproduct precursors, disinfectant residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBP). The department sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THM) and haloacetic acids (HAA). See R 325.10610 to R 325.10610d, and R 325.10719e to R 325.10719n for disinfection byproduct MCLs, disinfectant MRDLs, and related monitoring requirements.				
Total trihalomethanes (TTHM)	2	R 325.10610(2) R 325.10610b(2)(a)	3	R 325.10610d, R 325.10719e(1) and (2)(a), and R 325.10719h to R 325.10719n

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Haloacetic acids (HAA)	2	R 325.10610(2) R 325.10610b(2)(a)	3	R 325.10610d, R 325.10719e(1) and (2)(a), and R 325.10719h to R 325.10719n
Bromate	2	R 325.10610 R 325.10610b(2)(b)	3	R 325.10719e(1) and (2)(c)
Chloramine (MRDL)	2	R 325.10610a R 325.10610b(3)(a)	3	R 325.10719e(1) and (3)
Chlorine (MRDL)	2	R 325.10610a R 325.10610b(3)(a)	3	R 325.10719e(1) and (3)
Chlorite	2	R 325.10610 R 325.10610b(2)(c)	3	R 325.10719e(1) and (2)(b)
Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	R 325.10610a	2 *, 3	R 325.10719e(1), (3)(b)(i) and (iii)

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

		R 325.10610b(3) (b)(ii)		
	* Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a tier 2 violation.			
Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL	1 *	R 325.10610a R 325.10610b(3) (b)(i)	1	R 325.10719e(1), (3)(b)(ii) and (iii)
	* If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and 1 or more samples taken in the distribution system the next day exceed the MRDL, tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers tier 1 notification.			
Control of DBP precursors--TOC (TT)	2	R 325.10610b(4) R 325.10610c	3	R 325.10719e(1) and (4)
Bench marking and disinfection profiling	N/A	N/A	3	R 325.10722
Development of monitoring plan	N/A	N/A	3	R 325.10719e(5)
I. Other treatment techniques				
Acrylamide (TT)	2	R 325.10604e	N/A	N/A
Epichlorohydrin (TT)	2	R 325.10604e	N/A	N/A
II. Other monitoring:				
Unregulated contaminants	N/A	N/A	3	40 CFR 141.40[5]
Nickel	N/A	N/A	3	R 325.10710(4), (5), and (9)

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

III. Public notification for variances and exemptions:				
Operation under a variance or exemption	3	R 325.10302	N/A	N/A
Violation of conditions of a variance or exemption	2	R 325.10312	N/A	N/A
IV. Other situations requiring public notification:				
Fluoride level above 2.0 mg/l	3	R 325.10408a(1)	N/A	N/A
Exceedance of nitrate MCL for noncommunity supplies, as allowed by the department	1	R 325.10604c(3)	N/A	N/A
Availability of unregulated contaminant monitoring data	3	R 325.10407	N/A	N/A
Waterborne disease outbreak	1	R 325.10734(4)	N/A	N/A
Source water sample positive for fecal indicator: E.coli, enterococci, or coliphage	1	R 325.10739(6)	N/A	N/A
Other waterborne emergencies and other situations as determined by the department	1 or 2 or 3 *	N/A	N/A	N/A

* Waterborne emergencies require a tier 1 public notice. The department may place other situations in any tier it determines appropriate, based on threat to public health.

1 MCL - Maximum contaminant level, MRDL - maximum residual disinfectant level, TT - treatment technique.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

2 Failure to test for fecal coliform or E. coli is a tier 1 violation if testing is not done after any repeat sample tests pos coliform. All other total coliform monitoring and testing procedure violations are tier 3.

3 Supplies with treatment technique violations involving a single exceedance of a maximum turbidity limit u 325.10611b(1) are required to initiate consultation with the department within 24 hours after learning of the violation on this consultation, the department may subsequently decide to elevate the violation to tier 1. If a supply is unable t contact with the department in the 24-hour period, the violation is automatically elevated to tier 1.

4 Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL 1 violation. Other monitoring violations for nitrate are tier 3.

5 40 CFR 141.40, which pertains to unregulated contaminant monitoring, is contained in Title 40 CFR parts 136 to is available for purchase for $67.00 from the superintendent of documents at the address in R 325.10116. The ma available for inspection from the offices of the department at the address in R 325.10116(a) or available on the internet a www.ecfr.gov/.

Credits

History: 2003 AACS; 2005 AACS; 2009 AACS; 2015 AACS; 2018 MR 11, Eff. Jun. 14, 2018; 2020 MR 14, Eff. Aug. 3, 2020.

(By authority conferred on the department of environment, Great Lakes, and energy by section 5 of the safe drinking water act, 1976 PA 399, MCL 325.1005)

Current with amendments included in the Michigan Register, Issue Number 18-2024, dated October 15, 2024

Footnotes

1 1 MCL - Maximum contaminant level, MRDL - maximum residual disinfectant level, TT - treatment technique.

2 2 Failure to test for fecal coliform or E. coli is a tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are tier 3.

3 3 Supplies with treatment technique violations involving a single exceedance of a maximum turbidity limit under R 325.10611b(1) are required to initiate consultation with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to tier 1. If a supply is unable to make contact with the department in the 24-hour period, the violation is automatically elevated to tier 1.

4 4 Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a tier 1 violation. Other monitoring violations for nitrate are tier 3.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

5 5 40 CFR 141.40, which pertains to unregulated contaminant monitoring, is contained in Title 40 CFR parts 136 to 149 and is available for purchase for $67.00 from the superintendent of documents at the address in R 325.10116. The material is available for inspection from the offices of the department at the address in R 325.10116(a) or available on the internet at http://www.ecfr.gov/.

Mich. Admin. Code R 325.10401a, MI ADC R 325.10401a

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.

Michigan Administrative Code
Environment, Great Lakes and Energy
Drinking Water and Environmental Health Division
Supplying Water to the Public
Part 4. Public Notification and Public Education

Mich. Admin. Code R 325.10405

R 325.10405. Content of public notice.

Effective: August 3, 2020
Currentness

Rule 405. (1) If a community or noncommunity water supply that is subject to R 325.10401a has a violation or situation requiring public notification, then each public notice must include all of the following elements:

(a) A description of the violation or situation, including the contaminant or contaminants of concern, and, as applicable, the contaminant level or levels.

(b) When the violation or situation occurred.

(c) The potential adverse health effects from the violation or situation, including the standard language under subrule (4) (a) or (b) of this rule, whichever is applicable.

(d) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water.

(e) If alternative water supplies should be used.

(f) What actions consumers should take, including when they should seek medical help, if known.

(g) What the supply is doing to correct the violation or situation.

(h) When the supply expects to return to compliance or resolve the situation.

(i) The name, business address, and phone number of the supply or designee of the supply as a source of additional information concerning the notice.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

(j) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subrule (4)(c) of this rule, where applicable.

(2) All of the following elements must be included in the public notice for public water supplies operating under a variance or exemption:

(a) If a public water supply has been granted a variance or an exemption, then the public notice must contain all of the following elements:

(i) An explanation of the reasons for the variance or exemption.

(ii) The date on which the variance or exemption was issued.

(iii) A brief status report on the steps the supply is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption.

(iv) A notice of opportunities for public input in the review of the variance or exemption.

(b) If a public water supply violates the conditions of a variance or exemption, then the public notice must contain the 10 elements listed in subrule (1) of this rule.

(3) The public notice must be presented in the following manner:

(a) Each public notice required by this part must meet all of the following criteria:

(i) Must be displayed in a conspicuous way when printed or posted.

(ii) Must not contain overly technical language or very small print.

(iii) Must not be formatted in a way that defeats the purpose of the notice.

(iv) Must not contain language that nullifies the purpose of the notice.

(b) In communities where more than 10% of the consumers are non-English speaking consumers, the public notice must contain information in the appropriate language or languages regarding the importance of the notice or contain a telephone

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

number or address where persons served may contact the supply to obtain a translated copy of the notice or to request assistance in the appropriate language.

(4) The supply shall include the following standard language in the public notice:

(a) The supply shall include in each public notice the health effects language specified in table 1 of this rule corresponding to each MCL, MRDL, and treatment technique violation listed in table 1 of R 325.10401a, and for each violation of a condition of a variance or exemption.

(b) The supply shall include the following language in the notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in table 1 of R 325.10401a: "We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we 'did not monitor or test' or 'did not complete all monitoring or testing' for [contaminant or contaminants], and therefore cannot be sure of the quality of your drinking water during that time."

(c) The supply shall include in the notice the following language, where applicable, to encourage the distribution of the public notice to all persons served: "Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail."

Table 1 Regulated contaminants

Key

AL=Action level

MCL=Maximum contaminant level

MCLG=Maximum contaminant level goal

mfl=Million fibers per liter

MRDL=Maximum residual disinfectant level

MRDLG=Maximum residual disinfectant level goal

mrem/year=Millirems per year (a measure of radiation absorbed by the body)

N/A=Not applicable

NTU=Nephelometric turbidity units (a measure of water clarity)

pci/l=Picocuries per liter (a measure of radioactivity)

ppm=Parts per million, or milligrams per liter (mg/l)

ppb=Parts per billion, or micrograms per liter (µg/l)

ppt=Parts per trillion, or nanograms per liter

ppq=Parts per quadrillion, or picograms per liter

TT=Treatment technique

Contaminant in CCR units	Traditional MCL in mg/l, except where noted	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Microbiological contaminants						
Total coliform bacteria until March 31, 2016	MCL: For water supplies analyzing 40 or more samples per month, not more than 5.0% of the monthly samples may be positive for total coliform. For supplies analyzing fewer than 40 samples per month, not more than 1 sample per month may be positive for total coliform.			zero	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Total coliform bacteria beginning April 1, 2016. This row applies to Consumer Confidence Reporting.	TT	No conversion necessary	TT	N/A	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system.
Fecal coliform and E. coli until March 31, 2016	zero	No conversion necessary	zero	zero	Human and animal fecal waste	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

				can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
E. coli beginning April 1, 2016	MCL: Routine and repeat samples are total coliform-positive and either is E. coli-positive or supply fails to take all required repeat samples following E. coli-positive routine sample or supply fails to analyze total coliform-positive repeat sample for E. coli	zero	Human and animal fecal waste	E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps,

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.
Coliform Assessment or Corrective Action Violations, or both, beginning April 1, 2016. This row applies to public notification. For Consumer Confidence Reporting, see R 325.10413(12)(g)(i).	N/A	No conversion necessary	TT	N/A	N/A	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

We found coliforms indicating the need to look for potential problems in water treatment or distribution.

When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found.

[THE SUPPLY MUST USE 1 OF THE FOLLOWING APPLICABLE SENTENCES:]

We failed to conduct the required assessment.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						We failed to correct all identified sanitary defects that were found during the assessment(s).
E. coli Assessment or Corrective Action Violations, or both, beginning April 1, 2106. This row applies to public notification. For Consumer Confidence Reporting, see R 325.10413(12)(g)(ii).	N/A	No conversion necessary	TT	N/A	N/A	E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

severely compromised immune systems. We violated the standard for E. coli, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found.

[THE SUPPLY MUST USE 1 OF THE FOLLOWING APPLICABLE SENTENCES:]

We failed to conduct

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						the required assessment.
						We failed to correct all identified sanitary defects that were found during the assessment that we conducted.
Seasonal Supply Treatment Technique Violations of the Total Coliform Rule beginning April 1, 2016.	N/A	No conversion necessary	TT	N/A	N/A	When this violation includes the failure to monitor for total coliforms or E. coli prior to serving water to the public, the mandatory language found at R 325.10405(4)(b) must be used. When this violation includes failure to complete other actions, the appropriate public notice

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						elements found in R 325.10405(1) must be used.
Fecal indicator under groundwater requirements in R 325.10612 et. al:	TT	No conversion necessary	TT	E.coli: zero	Human and animal fecal waste	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

- E.coli - enterococci or - coliphage)				Others: N/A		
Violations of rules for ground water supplies subject to R 325.10612	TT	No conversion necessary	TT	N/A	N/A	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.
Turbidity (ntu)	TT	No conversion necessary	TT	N/A	Soil runoff	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
Other microbiological contaminants						
Giardia lamblia, viruses, heterotrophic plate count (HPC) bacteria, legionella, cryptosporidium	TT*	No conversion necessary	TT*	zero	Naturally present in the environment	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						associated headaches.
	* The treatment technique violations that involve turbidity exceedances may use health effects language for turbidity instead.					
Inorganic contaminants						
Antimony (ppb)	0.006	1000	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
Arsenic (ppb)	0.010	1000	10	0	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an

						increased risk of getting cancer.
Asbestos [fibers longer than 10 µm] (mfl)	7 mfl	No conversion necessary	7	7	Decay of asbestos cement water mains; erosion of natural deposits	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium (ppm)	2	No conversion necessary	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium (ppb)	0.004	1000	4	4	Discharge from metal refineries and coal-burning factories;	Some people who drink water containing beryllium

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

					discharge from electrical, aerospace, and defense industries	well in excess of the MCL over many years could develop intestinal lesions.
Cadmium (ppb)	0.005	1000	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chromium [total] (ppb)	0.1	1000	100	100	Discharge from steel and pulp mills; erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Cyanide [free] (ppb)	0.2	1000	200	200	Discharge from steel/ metal factories; discharge from plastic	Some people who drink water containing cyanide well in

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

					and fertilizer factories	excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride (ppm)	4.0	No conversion necessary	4.0	4.0	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old. Mottling,

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						also known as dental fluorosis, may include brown staining or pitting of the teeth, or both, and occurs only in developing teeth before they erupt from the gums.
Mercury [inorganic] (ppb)	0.002	1000	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate [as nitrogen] (ppm)	10	No conversion necessary	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite [as nitrogen] (ppm)	1	No conversion necessary	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Total nitrate and nitrite [as nitrogen] (ppm)	10	No conversion necessary	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Infants below the age of 6 months who drink water containing nitrate and nitrite in excess of the MCL could

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium (ppb)	0.05	1000	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
Thallium (ppb)	0.002	1000	2	0.5	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Lead and copper						
Lead (ppb)	AL=0.015 through December 31, 2024; AL= 0.012 beginning January 1, 2025.	1000	AL=15 through December 31, 2024; AL=12 beginning January 1, 2025. (TT)	zero	Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits	Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						blood pressure.
Copper (ppm)	AL=1.3	No conversion necessary	AL=1.3 (TT)	1.3	Corrosion of household plumbing systems; erosion of natural deposits	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Synthetic organic contaminants including pesticides and herbicides						
2,4-D (ppb)	0.07	1000	70	70	Runoff from herbicide used on row crops	Some people who drink water containing the weed killer 2,4-d well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP [silvex] (ppb)	0.05	1000	50	50	Residue of banned herbicide	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
Alachlor (ppb)	0.002	1000	2	zero	Runoff from herbicide used on row crops	Some people who drink water containing alachlor in excess of the MCL

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine (ppb)	0.003	1000	3	3	Runoff from herbicide used on row crops	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
Benzo(a)pyrene [PAHs] (ppt)	0.0002	1,000,000	200	zero	Leaching from linings of water storage tanks and distribution lines	Some people who drink water containing benzo(a)pyrene in excess of the MCL

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran (ppb)	0.04	1000	40	40	Leaching of soil fumigant used on rice and alfalfa	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood or nervous or reproductive systems.
Chlordane (ppb)	0.002	1000	2	zero	Residue of banned termiticide	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						liver or nervous system, and may have an increased risk of getting cancer.
Dalapon (ppb)	0.2	1000	200	200	Runoff from herbicide used on rights of way	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2-ethylhexyl) adipate (ppb)	0.4	1000	400	400	Discharge from chemical factories	Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						possible reproductive difficulties.
Di(2-ethylhexyl) phthalate (ppb)	0.006	1000	6	zero	Discharge from rubber and chemical factories	Some people who drink water containing di (2-ethylhexyl) phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane [DBCP] (ppt)	0.0002	1,000,000	200	zero	Runoff/ leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						getting cancer.
Dinoseb (ppb)	0.007	1000	7	7	Runoff from herbicide used on soybeans and vegetables	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Dioxin [2,3,7,8-TCDD] (ppq)	0.00000003	1,000,000,000	30	zero	Emissions from waste incineration and other combustion; discharge from chemical factories	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Diquat (ppb)	0.02	1000	20	20	Runoff from herbicide use	Some people who drink water containing diquat in excess of the MCL over

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						many years could get cataracts.
Endothall (ppb)	0.1	1000	100	100	Runoff from herbicide use	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin (ppb)	0.002	1000	2	2	Residue of banned insecticide	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
Ethylene dibromide (ppt)	0.00005	1,000,000	50	zero	Discharge from petroleum refineries	Some people who drink water containing ethylene dibromide in excess of the MCL

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
Glyphosate (ppb)	0.7	1000	700	700	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
Heptachlor (ppt)	0.0004	1,000,000	400	zero	Residue of banned pesticide	Some people who drink water containing heptachlor in excess of the MCL over many

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide (ppt)	0.0002	1,000,000	200	zero	Breakdown of heptachlor	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene (ppb)	0.001	1000	1	zero	Discharge from metal refineries and agricultural chemical factories	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene (ppb)	0.05	1000	50	50	Discharge from chemical factories	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane (ppt)	0.0002	1,000,000	200	200	Runoff/ leaching from insecticide used on cattle, lumber, gardens	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Methoxychlor (ppb)	0.04	1000	40	40	Runoff/ leaching from insecticide used on fruits, vegetables, alfalfa, livestock	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl [vydate] (ppb)	0.2	1000	200	200	Runoff/ leaching from insecticide used on apples, potatoes, and tomatoes	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
Pentachlorophenol (ppb)	0.001	1000	1	zero	Discharge from wood preserving factories	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram (ppb)	0.5	1000	500	500	Herbicide runoff	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Polychlorinated biphenyls [PCBs] (ppt)	0.0005	1,000,000	500	zero	Runoff from landfills; discharge of waste chemicals	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						or nervous system difficulties, and may have an increased risk of getting cancer.
Simazine (ppb)	0.004	1000	4	4	Herbicide runoff	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene (ppb)	0.003	1000	3	zero	Runoff/ leaching from insecticide used on cotton and cattle	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						getting cancer.
Per- and polyfluoroalkyl substances (PFAS)						
Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt)	370 ppt (ng/l)	No conversion necessary	370	N/A	Discharge and waste from industrial facilities utilizing the Gen X chemical process	Some people who drink water containing HFPO-DA in excess of the MCL could experience problems with their liver. Some fetuses of pregnant women and infants born to mothers who drink water containing HFPO-DA in excess of the MCL may experience developmental effects.
Perfluorobutane sulfonic acid (PFBS) (ppt)	420 ppt (ng/l)	No conversion necessary	420	N/A	Discharge and waste from industrial facilities; stain-resistant treatments	Some infants born to mothers who drink water containing PFBS in excess of the MCL may experience

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						decreased thyroid hormone levels.
Perfluorohexane sulfonic acid (PFHxS) (ppt)	51 ppt (ng/l)	No conversion necessary	51	N/A	Firefighting foam; discharge and waste from industrial facilities	Some people who drink water containing PFHxS in excess of the MCL could experience problems with their thyroid, liver, and cholesterol levels.
Perfluorohexanoic acid (PFHxA) (ppt)	400,000 ppt (ng/l)	No conversion necessary	400,000	N/A	Firefighting foam; discharge and waste from industrial facilities	Some people who drink water containing PFHxA in excess of the MCL could experience problems with their liver and kidneys.
Perfluorononanoic acid (PFNA) (ppt)	6 ppt (ng/l)	No conversion necessary	6	N/A	Discharge and waste from industrial facilities; breakdown of precursor compounds	Some fetuses of pregnant women and infants born to mothers who drink water containing PFNA in

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						excess of the MCL may experience developmental delays and decreased body weight gain.
Perfluorooctane sulfonic acid (PFOS) (ppt)	16 ppt (ng/l)	No conversion necessary	16	N/A	Firefighting foam; discharge from electroplating facilities; discharge and waste from industrial facilities	Some fetuses of pregnant women and infants born to mothers who drink water containing PFOS in excess of the MCL may experience developmental delays and decreased body weight gain.
Perfluorooctanoic acid (PFOA) (ppt)	8 ppt (ng/l)	No conversion necessary	8	N/A	Discharge and waste from industrial facilities; stain-resistant treatments	Some fetuses of pregnant women and infants born to mothers who drink water containing PFOA in excess of the MCL may experience

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						neurodevelopmental effects and skeletal effects.
Volatile organic contaminants						
Benzene (ppb)	0.005	1000	5	zero	Discharge from factories; leaching from gas storage tanks and landfills	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetrachloride (ppb)	0.005	1000	5	zero	Discharge from chemical plants and other industrial activities	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						and may have an increased risk of getting cancer.
Chlorobenzene (ppb)	0.1	1000	100	100	Discharge from chemical and agricultural chemical factories	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
O-dichlorobenzene (ppb)	0.6	1000	600	600	Discharge from industrial chemical factories	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
P-dichlorobenzene (ppb)	0.075	1000	75	75	Discharge from industrial	Some people who

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

					chemical factories	drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-dichloroethane (ppb)	0.005	1000	5	zero	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-dichloroethylene (ppb)	0.007	1000	7	7	Discharge from industrial chemical factories	Some people who drink water containing 1,1-dichloroethylene

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						in excess of the MCL over many years could experience problems with their liver.
Cis-1,2-dichloroethylene (ppb)	0.07	1000	70	70	Discharge from industrial chemical factories	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
Trans-1,2-dichloroethylene (ppb)	0.1	1000	100	100	Discharge from industrial chemical factories	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane (ppb)	0.005	1000	5	zero	Discharge from	Some people

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

					pharmaceutical and chemical factories	who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-dichloropropane (ppb)	0.005	1000	5	zero	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene (ppb)	0.7	1000	700	700	Discharge from petroleum refineries	Some people who drink water containing ethylbenzene well in excess of the MCL over

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						many years could experience problems with their liver or kidneys.
Styrene (ppb)	0.1	1000	100	100	Discharge from rubber and plastic factories; leaching from landfills	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
Tetrachloro-ethylene (ppb)	0.005	1000	5	zero	Discharge from factories and dry cleaners	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						getting cancer.
Toluene (ppm)	1	No conversion necessary	1	1	Discharge from petroleum factories	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
1,2,4-trichlorobenzene (ppb)	0.07	1000	70	70	Discharge from textile-finishing factories	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-trichloroethane (ppb)	0.2	1000	200	200	Discharge from metal degreasing sites and other factories	Some people who drink water containing 1,1,1-trichloroethane

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2-trichloroethane (ppb)	0.005	1000	5	3	Discharge from industrial chemical factories	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
Trichloroethylene (ppb)	0.005	1000	5	zero	Discharge from metal degreasing sites and other factories	Some people who drink water containing trichloroethylene in excess of the MCL over many years

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						could experience problems with their liver and may have an increased risk of getting cancer.
Vinyl chloride (ppb)	0.002	1000	2	zero	Leaching from PVC piping; discharge from plastics factories	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes [total] (ppm)	10	No conversion necessary	10	10	Discharge from petroleum factories; discharge from chemical factories	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
Radioactive contaminants						

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Beta/ photon emitters (mrem/ yr)	4 mrem/ yr	No conversion necessary	4	zero	Decay of natural and man-made deposits	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta particle and photon radioactivity in excess of the MCL over many years may have an increased risk of getting cancer.
Alpha emitters [gross alpha] (pci/l)	15 pCi/L	No conversion necessary	15	zero	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined radium [226 & 228] (pci/l)	5 pCi/L	No conversion necessary	5	zero	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (pCi/L)	30 ug/L	No conversion necessary	30	zero	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						cancer and kidney toxicity.
Disinfection byproducts (DBP), byproduct precursors, and disinfectant residuals: where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBP). The department sets standards for controlling the levels of disinfectants and DBP in drinking water, including trihalomethanes (THM) and haloacetic acids (HAA). See R 325.10610 to R 325.10610d and R 325.10719e to R 325.10719n for disinfection byproduct MCLs, disinfectant MRDLs, and related monitoring requirements.						
Total trihalomethanes [TTHM] (ppb)	0.080*	1000	80*	N/A	By-product of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
* The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.						
Haloacetic acids (HAAs) (ppb)	0.060*	1000	60*	N/A	By-product of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						years may have an increased risk of getting cancer.
	* The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.					
Bromate (ppb)	0.010	1000	10	zero	By-product of drinking water disinfection	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Chloramines (ppm)	MRDL = 4	No conversion necessary	MRDL = 4	MRDLG = 4	Water additive used to control microbes	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						excess of the MRDL could experience stomach discomfort or anemia.
Chlorine (ppm)	MRDL = 4	No conversion necessary	MRDL = 4	MRDLG = 4	Water additive used to control microbes	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorite (ppm)	1	No conversion necessary	1	0.8	By-product of drinking water disinfection	Some infants and young children who drink water containing chlorite in excess of the

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chlorine dioxide (ppb)	MRDL = 0.8	1000	MRDL = 800	MRDLG = 800	Water additive used to control microbes	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
	Add the following only to public notification where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL: "The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers."					
	Add the following only to public notification where 1 or more distribution system samples are above the MRDL: "The chlorine dioxide violations reported today include exceedances of the drinking water standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure."					
Total organic carbon [TOC - control of DBP precursors] (ppm)	TT	No conversion necessary	TT	None	Naturally present in the environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THM) and haloacetic acids (HAA). Drinking water

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

						containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Other treatment techniques						
Acrylamide	TT	No conversion necessary	TT	zero	Added to water during sewage/ wastewater treatment	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.

 © 2024 Thomson Reuters. No claim to original U.S. Government Works.

Epichlorohydrin	TT	No conversion necessary	TT	zero	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

Credits

History: 1979 AC; 1989 AACS; 2003 AACS; 2005 AACS; 2009 AACS; 2015 AACS; 2018 MR 11, Eff. Jun. 14, 2018; 2020 MR 14, Eff. Aug. 3, 2020.

(By authority conferred on the department of environment, Great Lakes, and energy by section 5 of the safe drinking water act, 1976 PA 399, MCL 325.1005)

Current with amendments included in the Michigan Register, Issue Number 18-2024, dated October 15, 2024

Mich. Admin. Code R 325.10405, MI ADC R 325.10405

End of Document

© 2024 Thomson Reuters. No claim to original U.S. Government Works.