FACT SHEET

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Nitrate in Public Drinking Water

Office of Water Quality

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Introduction:

Public Water Systems that supply drinking water must follow certain federal and state safe drinking water regulations. Drinking water is any water supplied for the purpose of human consumption or domestic use. The source of the water can be ground water from wells or surface water from rivers and lakes. The purpose of this fact sheet is to explain why Public Water Systems monitor and report for nitrate.

Who monitors for nitrate? How is monitoring done?	*All Public Water Systems Supplied By Surface Water or Ground Water must monitor for nitrate. Nitrate is monitored on either an annual or quarterly basis. The majority of Indiana's Public Water Systems monitor for nitrate annually. However, a significant number are required to conduct quarterly monitoring for nitrate. The required monitoring frequency depends on the system's classification (Community, Nontransient Noncommunity, or Transient Noncommunity), water source (ground or surface), and the levels of nitrate that have been previously detected in the system's water. One exception is that purchase water systems do not have to monitor for nitrates.*
What are the health effects of nitrate?	*Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The illness is known as methemoglobinemia, or "blue baby syndrome." It is caused when nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the infant's blood, leading to an acute illness. Symptoms of the illness include shortness of breath and blueness of the skin. Immediate medical attention is needed if these symptoms develop.*
What is the maximum contaminant level (MCL) for nitrate?	*The maximum contaminant level (MCL) for nitrate is 10 milligrams per liter (mg/l).*
What are sources of nitrate?	*Nitrate can enter drinking water from a variety of sources, including runoff/seepage from fertilized agricultural lands, municipal/industrial wastewater, refuse dumps, animal feedlots, septic tanks, and decaying plant debris. Wells that are closer to sources of nitrate and wells that are shallow are more likely to be impacted by nitrate contamination.*
How frequently must I monitor for nitrate?	***For Community and Nontransient Noncommunity Water Systems that use ground water as their source, base nitrate monitoring is required annually**. If any result is greater than or equal to 5 mg/l (50% of the MCL for nitrate), the Public Water System must conduct quarterly monitoring for at least four consecutive quarters. If results of the quarterly sampling are determined to be "reliably and consistently below" the nitrate MCL (10 mg/l), the system may be returned to annual monitoring. Future annual samples must then be taken in the quarter which previously yielded the highest result.* ***For Community and Nontransient Noncommunity Water Systems that use surface water as their source, base nitrate monitoring is required quarterly.** The frequency may be reduced to annual monitoring if four consecutive quarterly monitoring results are below 5 mg/l. Future annual samples must be taken in the quarter which previously yielded the highest result.* ***For Transient Noncommunity Water Systems that use either ground water or surface water as their source, base nitrate monitoring is required annually.** If the*

	average of any annual sample result and confirmation sample result is greater than 20 mg/l, quarterly monitoring must be conducted (see additional information below).
What if nitrate results are greater than the MCL?	***For all systems**, if any annual or quarterly nitrate monitoring result exceeds 10 mg/l, the system is required to collect a nitrate confirmation sample. The average of the initial and confirmation sample is used to determine compliance with the MCL. Further requirements for specific types of systems are as follows.* ***For Community and Nontransient Noncommunity Water Systems,** if the average of the initial sample result and the confirmation sample result is greater than 10 mg/l, the system must conduct quarterly nitrate monitoring, issue public notification, and pursue remediation of the contamination.* ***For Transient Noncommunity Water Systems,** if the average of the initial sample result and the confirmation sample result is between 10 and 20 mg/l, the system may remain on annual monitoring and continue to supply drinking water if the following five conditions are met: 1) water will not be available to children under six months of age, 2) there will be continuous posting of the fact that nitrate levels exceed 10 mg/l and potential health effects of exposure, 3) local and state public health authorities shall be notified annually of nitrate levels that exceed 10 mg/l, 4) no adverse health effects shall result, and 5) provide additional public notification, if required by the IDEM Commissioner. If the average of the initial and confirmation sample is greater than 20 mg/l, the system must provide public notification, conduct quarterly monitoring, and pursue remediation of the contamination.*

IDEM's Role:

The Indiana Department of Environmental Management (IDEM) is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial and governmental operations vital to a prosperous economy. IDEM's Office of Water Quality, Drinking Water Branch regulates, monitors, permits and licenses drinking water facilities and operators.

Rule Citations: 327 IAC 8-2-4 and 327 IAC 8-2-15.

Public Water System's Role:

Community Water Systems must understand and comply with regulations for monitoring, treating and reporting. Community Water System owners and operators may contact IDEM's Drinking Water Branch at (317) 234-7430 to request free compliance and technical assistance.

Citizen's Role:

Citizens can find drinking water quality information by visiting IDEM's Drinking Water Watch website at https://myweb.in.gov/IDEM/DWW/ and contacting their local Community Water Supply for the latest Consumer Confidence Report. Citizens can find information about source water protection at http://www.in.gov/idem/4142.htm.

Additional Information:

- For more information on nitrate, please visit the United States Environmental Protection Agency's (U.S. EPA's) website at http://water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm. Indiana's rules on Drinking Water Standards (327 IAC 8) is found at http://www.in.gov/legislative/iac/t03270/a00080.pdf.
- In addition to IDEM's Office of Water Quality Drinking Water Branch at (317) 234-7430, U.S. EPA's Safe Drinking Water Hotline, at 1-800-426-4791, offers assistance to Public Water System owners and operators and the public. IDEM provides compliance information for Indiana Public Water Systems at http://in.gov/idem/cleanwater/2386.htm.

This fact sheet is intended solely as guidance and does not have the effect of law or represent formal Indiana Department of Environmental Management (IDEM) decisions or final actions. This fact sheet shall be used in conjunction with applicable rules and statutes. It does not replace applicable rules and statutes, and if it conflicts with these rules and statutes, the rules and statutes shall control.