

Fact Sheet: 2

Nitrate / Nitrite Sampling Noncommunity Public Water Supplies

Water Supply Serial Number (WSSN) _____ Well # _____

Name of Water Supply _____

Sampling Contact _____ Phone _____

Health Department Contact _____ Phone _____

Nitrate Sampling Frequency _____ (Annual, Quarterly, Monthly)

Nitrite Sampling Frequency _____ Once, unless initial result is greater than 0.5mg/l

Nitrate Sampling Location _____

(Sample siting plan required to be approved by local health department, see sanitary survey.)

Laboratory Name _____ Phone _____

Nitrates and Nitrites – General Information

Nitrate (NO₃) is a form of nitrogen combined with oxygen, which can be converted in the body to nitrite (NO₂). It can get into water if a well is improperly constructed or located where it is subject to contamination sources. Typical sources of nitrate include: sewage disposal systems, run-off from barnyards or fertilized fields, industrial wastes, etc., or may be found naturally occurring in the soil. Nitrates in large amounts may bond with hemoglobin in the red blood cells of infants and prevent it from carrying oxygen. This may cause a condition known as methemoglobinemia or “blue baby syndrome”. The acutely poisoned person will have a blue discoloration of the skin due to the reduction of the amount of oxygen in the blood stream and must be attended by a physician immediately. Also, because nitrates may be found in sewage or animal waste, excessive levels in drinking water may indicate the presence of other types of potentially harmful contaminants. The U.S. EPA has established a Maximum Contaminant Level (MCL) for nitrate at 10 milligrams per liter (mg/l) and 1.0 mg/l for nitrite.

Sampling Protocol

- Collect the samples just prior to delivery or mailing to the laboratory. Samples to be analyzed at the DEQ laboratory should be taken early in the week so they can be analyzed within 48 hours of collection.
- Use the proper sample container obtained from a certified laboratory. Do not rinse.
- Read the sampling instructions carefully.
- Allow the water to run at full flow for several minutes before collecting the sample to flush stagnant water. (Fill out the sample form while you wait.)
- Adjust the tap to provide a pencil-sized stream of water and fill the bottle to the neck.
- Complete the report form making sure the WSSN, well number, date and time of sampling and return address are recorded on the form correctly. Be sure to request the proper lab analysis or test code for automated partial chemistry if using the MDEQ lab or nitrate/nitrite if using a different lab.
- Deliver or mail the sample to the lab as soon as possible so the 48 hours transit time is not exceeded.

After Receiving Nitrate / Nitrite Sample Results

1. Review the sample results and send a copy of results to the local health department. (Note: if you use the MDEQ lab and have properly completed the sample form, results are automatically sent to the local health department.)
2. Normal monitoring requirements are once per year for nitrate and one time for nitrite (no further nitrite testing is required unless the result is greater than 0.5 mg/l).
3. Whenever an initial water sample exceeds the MCL level for nitrate (10.0 mg/l), nitrite (1.0 mg/l) or a combination of nitrate and nitrite (10.0 mg/l), you must:
 - a. Collect a confirmation sample within 24 hours of receiving the initial result.
 - b. If the average of two consecutive nitrate/nitrite samples exceeds 10.0 mg/l, the average of two nitrite samples exceeds 1.0 mg/l, or the cumulative average of both exceeds 10.0 mg/l, an MCL violation has occurred. (see below)
4. If the results are below the MCL levels for nitrate and nitrite, they are acceptable. However, if they exceed one half the standard (5.0 mg/l for nitrate or .5 mg/l for nitrite), an increase in sampling frequency is required based on your type II status:
 - a. A nontransient noncommunity public water supply with greater than mg/l nitrate or greater than 0.5 mg/l nitrite must sample QUARTERLY for at least 1 year.
 - If sampling during this or subsequent years indicate nitrate levels are consistently stabilized below the MCL, then the monitoring frequency may be reassigned to once per year.
 - b. A transient noncommunity public water supply with results from nitrite analysis indicating greater than 0.5 nitrite must sample QUARTERLY for at least one year as described above for nontransient supplies.

NOTE: Quarterly sampling for transient supplies with nitrate results that exceed 5.0 mg/l is not required unless indicated by the DEQ or its representative (local health department)

If you have an MCL violation, you must:

1. Notify the local health department within 24 hours or the next business day.
2. Notify the public (consumers) of the MCL violation as instructed by the local health department.
3. Provide a temporary alternate supply of water from an approved source, such as bottled water for those who request it.
4. Find a new source. Often a new deeper well can be constructed to obtain water meeting the nitrate/nitrite standard.
5. If municipal water is available, connection is required if an approved onsite source cannot be obtained