

The attached guidance, “Transient Non-community Systems and Nitrate MCL Violations” was developed for use by Department staff when making decisions related to MCL exceedances for nitrate at transient non-community public water systems.

Wisconsin Administrative Code ch. NR 809 includes information regarding procedures transient non-community public water systems must follow in order to continue operation when experiencing reported nitrate concentrations between 10 and 20 milligrams/liter (mg/L). This guidance was developed by a team of Drinking Water program staff from DNR. The guidance is intended to assist public water staff and system operator/owners when developing an approach to remedy water supply configuration (i.e., new well, approved treatment, etc.) or change operational and maintenance procedures to allow continued operation up to 20.49 mg/L reported nitrate concentration. Comments received during the 21 day comment period have been considered and revisions have been tracked for ease of review. The final guidance is posted on the Department’s Program Guidance Internet website for at least 21 days for internal and external stakeholders. For internal use, the final guidance will be posted on a Department Intranet website and will be incorporated into the Public Water Supply Operations Handbook.

Comments related to this guidance should be sent to: Mark Pauli, [mark.pauli@wisconsin.gov](mailto:mark.pauli@wisconsin.gov); (715) 365-8912.

## Public Water Supply Operations Handbook

## Transient Non-Community Systems and Nitrate MCL Violations

A.1 Monitoring Requirements

## A.1.1 New Wells, Reconstructed Wells, and Newly Inventoried Wells

New wells (including replacement wells) serving existing or new transient non-community (TN) systems are required to be tested for nitrate<sup>1</sup> prior to putting on line as provided in s. NR 809.115(4)(a), Wis. Adm. Code. Reconstructed wells serving TN systems and newly inventoried TN wells (at a newly inventoried TN system or an additional well serving a TN system that was not previously added to the inventory) shall be sampled as soon as possible. If the nitrate sample result is  $\geq 10.5$  mg/L, a confirmation sample shall be collected. If the average of the compliance sample and the confirmation sample exceeds the maximum contaminant levels (MCL) (i.e. is  $\geq 10.5$  mg/L for nitrate), the well shall be evaluated according to the requirements outlined in section A.6 *Discretion to Allow Up to 20.49 mg/L Nitrate* of this guidance. [Note: There may be instances when a well with high nitrate should not be put on line. In making the decision to allow a TN system with nitrate concentrations greater than the MCL to go on line, all other options for potable water shall be evaluated first, including casing to a deeper depth.] This is a case-by-case judgment to be made by the Drinking Water & Groundwater Region Supervisor and/or Public Water Supply Section Chief. The decision shall be documented through the same enforcement process used with existing TNs that have a confirmed MCL violation but that are allowed to continue to operate.

## A.1.2 Routine Monitoring

Routine annual nitrate samples are required to be collected between January 1<sup>st</sup> and September 30<sup>th</sup> of each year at non-contract county TN systems. TN systems in contract counties have until December 31<sup>st</sup>. TN systems on quarterly monitoring are required to sample prior to the end of each 3 month period ending on March 31<sup>st</sup>, June 30<sup>th</sup>, September 30<sup>th</sup>, and December 31<sup>st</sup>, regardless of whether they are in a contract county or not.

- Seasonal TN systems on annual nitrate and annual bacti monitoring and not in a contract county are required to collect nitrate samples during the month before or the month of resuming operation.
- Seasonal TN systems on annual nitrate and quarterly bacti monitoring and not in a contract county are required to sample during the period of one month prior to resuming operation through the last day of the month in which their season ends.
- Seasonal TN systems on annual nitrate and quarterly bacti monitoring in a contract county are required to sample during the period of one month prior to resuming operation through September 30th.

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<sup>1</sup> Nitrite, nitrate and bacteriological testing are required for new wells.

- Seasonal TN systems that are on quarterly monitoring are required to collect a sample for each quarter and part of a quarter in which they operate, even if they only operate one day in a quarter.
- Seasonal TN systems on annual monitoring and in a contract county are required to sample during the period of one month prior to resuming operation through the last day of the month in which their season ends. [Please see Figure 1: Typical TN Routine Nitrate Sample Frequency]

### A.1.3 Confirmation Samples

#### a. TN systems in the County Contract Program

If a TN system is not already approved for operation between “10 & 20” or does not have an ongoing MCL violation, and they have a nitrate sample result  $\geq 10.5$  mg/L, city/county staff shall collect a confirmation sample within 24 hours of receiving the results or instruct the owner to collect the confirmation sample if the city/county staff are unable to do so. City/county staff shall inform field Drinking Water and Groundwater (DG) staff of the exceedance. Field DG staff shall check to verify that the confirmation sample is collected. If it is not possible to collect a confirmation sample within 24 hours, the TN system shall post a Tier 1 public notice (PN) upon notification of the MCL exceedance and collect the confirmation sample within 14 days per s. NR 809.115 (6)(b), Wis. Adm. Code. City/county staff shall generate and hand-deliver, e-mail or fax the system a copy of the Tier 1 PN<sup>2</sup> to post until the confirmation sample result is received. Public notices shall be in a language understood by the water supply users. [Note that this 24 hour PN is for Monitoring/Reporting, and not a MCL PN.] If the average of the compliance sample and the confirmation sample is  $\geq 10.5$  mg/L, city/county staff shall hand-deliver or mail laminated warning placards for continuous posting. If the TN system is already posting PNs due to a previous nitrate MCL exceedance, a confirmation sample is not required.

#### b. TN Systems Covered by Field DG Staff

The first time a system has a nitrate sample result  $\geq 10.5$  mg/L, field staff shall instruct the system owner to collect a confirmation sample. If a system is unable to collect a confirmation sample within 24 hours, the system shall post a Tier 1 PN immediately upon notification of the exceedance and collect the confirmation sample within 14 days according to s. NR 809.115 (6)(b), Wis. Adm. Code. District DG staff shall hand-deliver, e-mail, or fax the system owner or representative a copy of the Tier 1 PN to post until the result of the confirmation sample is received. If the average of the compliance sample and the confirmation sample is  $\geq 10.5$  mg/L, field DG staff shall hand-deliver or mail laminated warning placards for continuous posting. If the TN system is already posting PNs due to a previous nitrate MCL exceedance, a confirmation sample is not required. Public notices shall be in a language understood by the water supply users.

### A.1.4 Increased Monitoring

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<sup>2</sup> Postal delivery of the Tier 1 PN is acceptable if no other means of delivery are available.

TN systems with nitrate results  $\geq 5.0$  mg/L may be placed on quarterly monitoring on a case-by-case basis. Quarterly sampling may be necessary to assess rapidly rising nitrate levels or seasonal variations. It may also be done while assessing whether or not low nitrate water is available. A system with a compliance or confirmation sample result  $\geq 20.5$  mg/L shall be placed on quarterly monitoring. [Note: If a compliance sample is  $\geq 20.5$  mg/L, a confirmation sample must be collected. If the average of the compliance sample and the confirmation sample is  $\geq 20.5$  mg/L, the system may no longer serve water to the public. See section A.8. for further guidance.]

#### A.2 Sample Sites, Collection, Analysis, Reporting, and Review

- I. Locations of all sample sites shall be documented on the system's monitoring site plan. Field DG staff and city/county staff shall verify that there are updated monitoring plans on file. These may need to be created or updated during the sanitary survey. During the sanitary survey the field DG specialist or city/county staff shall ask about the procedures used for sample collection if the person collecting the samples is present. In some instances it may be helpful to ask the sampler to collect their samples during the survey. Make sure the sampling procedure is appropriate for each type of sample collected (raw water, entry point, distribution).
- II. All compliance/confirmation/investigative samples shall be analyzed by SDWA certified laboratories that report analytical results electronically to the Department. Operational monitoring samples (field nitrate, alkalinity, hardness, pH, etc.) and pumpage data shall be collected/analyzed using Department approved field test methods and may be reported to the Department using the electronic monthly operating report (EMOR) web application.
- III. The field DG specialist or city/county staff shall review compliance and operational monitoring results for each entry point along with any raw water data available for the well(s) serving the corresponding entry point. Follow the guidance below if compliance monitoring samples indicate a MCL violation has occurred. If water quality has changed over time but has not resulted in a MCL violation, note the trends and alert the PWS about this situation. For example, if nitrate results have steadily increased over the years and are approaching 10 mg/L it is recommended that the field DG specialist or city/county staff notify the system owner and provide an explanation for required action(s) if a result exceeds the MCL.

#### A.3 Nitrate MCL Violation Determination and Enforcement

Initial compliance is based on 1 sample if the nitrate result is  $< 10.5$  mg/L. Systems are determined to be out of compliance if the average of the first sample with a result  $\geq 10.5$  mg/L and a confirmation sample is  $\geq 10.5$  mg/L nitrate. A nitrate MCL violation is generated if the average of the compliance sample and confirmation sample is  $\geq 10.5$  mg/L. Systems with a nitrate MCL violation shall provide an alternate safe water supply, for infants 6 months and younger and any female who is or may become pregnant; within 24 hours of receiving the results. [Note: Systems with a nitrate MCL exceedance that are already on

continuing operation are not required to collect confirmation samples unless a compliance sample result is  $\geq 20.5$  mg/L.]

Field DG or city/county staff shall send a NON to the owner of a TN system for a nitrate MCL violation within 24 hours of receiving the confirmation sample result, so the system can issue a Tier I PN. The NON shall explain the violation and the health effects of high nitrates and PN posting requirements. Enforcement action shall be initiated when a system fails to post a public notice or provide water from a known safe source within 24 hours of the MCL violation for infants 6 months and younger and any female who is or may become pregnant. If the system is located within a "contract county" jurisdiction, enforcement action (NON) is taken by the city/county staff. If secondary enforcement is necessary, the city/county should refer the facility to the DNR specialist.

If 2 consecutive annual samples or 4 consecutive quarterly samples are 9.49 or less mg/L nitrate, the system returns to compliance with the MCL for nitrate and the PN may be discontinued.

#### A.4 M/R Violations and Enforcement

TN systems on annual or quarterly monitoring for which a required sample is not collected and/or reported have a monitoring and reporting (M/R) violation. Field DG staff or city/county staff are responsible for verifying the M/R violations and sending a NON and a public notice (including a certification statement) within 30 days of the end of the compliance period in which the sample was to be collected. Specify in the NON that the system owner is to provide public notice for failure to collect a sample for as long as the situation or violation persists, but in no case for less than 7 days, even if the violation or situation is resolved. Section NR 809.80(5), Wis. Adm. Code requires that the facility submit a signed certification to the Department within 10 days of issuing the PN documenting it has fully complied with the PN regulations. The TN system shall include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the water system in another manner approved by the Department.

If a system on annual monitoring fails to meet the deadlines in the NON, or misses any additional sampling during the following calendar year, district DG staff should complete an Environmental Enforcement request form within 14 days asking EE to send the system a NOV to schedule an enforcement conference (see Enforcement Policy for Transient and Non-transient Non-Community Public Water Systems). If a system fails to return to compliance after being notified of deadlines established during the enforcement conference (whether the system attends the enforcement conference or not), DG staff should notify EE staff to issue an Administrative Forfeiture Order within 14 days of the missed deadline.

If a system on quarterly monitoring fails to meet the deadlines in the NON, or misses 2 or more samples during the current or following calendar year, district DG staff should complete an Environmental Enforcement request form within 14 days asking EE to send the system a NOV to schedule an enforcement conference (see Enforcement Policy for Transient and Non-transient Non-Community Public Water Systems). If a system fails to return to compliance after being notified of deadlines established during the enforcement conference

(whether the system attends the enforcement conference or not), DG staff should notify EE staff to issue an Administrative Forfeiture Order within 14 days of the missed deadline.

In either case, a compliance agreement shall only be used when a system demonstrates an ability to return to compliance within 6 months. If a system is unable to meet this timeline, a consent order is required. If voluntary compliance is not achieved, EE staff may issue an administrative forfeiture order or refer the case to Department of Justice. The system shall notify its customers each time it fails to collect a required sample. [Note: This notification is different than the notification of a MCL exceedance.]

#### A.5 Public Notice Posting Requirements and Violations and Enforcement

TN systems are required to notify the public as follows: within 24 hours of a PWS being informed of a nitrate MCL violation as indicated in s. NR 809.952 (2), Wis. Adm. Code or immediately if a confirmation sample is not collected within 24 hours of the water supplier being notified of the result of a sample  $\geq 10.5$  mg/L.

Posting is required as long the violation continues.

- a. Posting requirements during a nitrate violation shall be enforced. Required locations for the nitrate placard(s) are listed below:
  - I. For all TN systems post at all drinking water outlets, i.e., all sinks, drinking fountains, etc.
  - II. In addition to locations identified in I, restaurants and taverns shall post at the entrance or in plain sight.
  - III. In addition to locations identified in I, motels/hotels shall place laminated warning placards in every room at consumable locations.
- b. On-site verification of posting compliance shall be conducted when possible but at least every 5 years during sanitary surveys.

If a Department or Wisconsin Department of Health Services (DHS) representative or city/county staff notes that a TN system is not properly posting at any time, the owner has demonstrated that the requirements of s. NR 809.11(3), Wis. Adm. Code cannot be met.

When a system fails to PN a MCL violation, enforcement action shall be initiated. If the system is located within a "contract county" jurisdiction, enforcement action (NON) is taken by the city/county staff. If secondary enforcement is necessary, the city/county should refer the facility to the DNR specialist. Field DG staff shall prepare a secondary enforcement request for a NOV and enforcement conference.

When a system fails to post a Tier 3 PN for a M/R violation, either a NON or NOV based on the compliance history of the system shall be issued. [Note: For further guidance on questions/issues related to enforcement please see the guidance on Administrative Forfeiture Orders.]

#### A.6 Discretion to Allow Up to 20.49 mg/L Nitrate

The Department has discretion under s. NR 809.11(3), Wis. Adm. Code, to allow a TN system with nitrate concentrations no greater than 20.49 mg/L to continue to provide water for consumption.

*Section NR 809.11(3) Operation with nitrates not exceeding 20 mg/L At the discretion of the department, nitrate as nitrogen levels not to exceed 20 mg/L may be allowed in a non-community water system if the water supplier demonstrates all of the following to the satisfaction of the department:*

*(a) The water will not be available to children under 6 months of age.*

*(b) The water supplier meets the public notification requirements under s. NR 809.958, including continuous posting of the fact that nitrate as nitrogen levels exceed 10 mg/L and the potential health effects of exposure.*

*(c) Local and state public health authorities will be notified annually of nitrate as nitrogen levels that exceed 10 mg/L.*

*(d) A supply of bacteriologically safe drinking water, containing less than 10 mg/L nitrate as nitrogen, is provided for infants under 6 months of age.*

*(e) No adverse health effects will result.*

Staff should encourage all owners of TNs with nitrate MCL violations to seek low nitrate water. The decision to allow nitrates between 10.5 and 20.49 mg/L is not automatic. The system shall meet the following requirements: the well shall comply with ch. NR 812, Wis. Adm. Code requirements and the system shall provide an alternate safe water supply to at risk populations identified by (DHS). Systems meeting these criteria must also satisfy the conditions in s.NR 809.11(3), Wis. Adm. Code. Systems that do not meet all of these conditions shall take corrective action to provide a code-compliant water source and shall be instructed to follow the tiered approach outlined below in *A.8.1 Assessment and Recommendation*. More detailed procedures are described below. The decision to allow a TN system to continue to provide water for consumption is a Department decision and may be made with consultation from the city/county staff in “contract counties”.

#### A.6.1 Determine Compliance with ch. NR 812, Wis. Adm. Code

When a nitrate MCL violation occurs, field DG staff or city/county staff review the well construction report and the last sanitary survey or other inspection report to see if the contamination could be due to construction deficiencies. If there are outstanding code violations, inquire on the status of repair. Initiate or escalate enforcement actions if necessary. It is necessary to evaluate the system to determine if it qualifies for continuing operation status (e.g. compliance with NR 812).

For inspections older than 3 years, it is recommended that the field DG staff person or city/county staff shall conduct a complete sanitary survey on the system; it may also be useful to look for local land use changes. If field DG staff are evaluating a problem well in a contract county, where the city/county health department usually does the inspection, invite the city/county staff along. Determine whether or not the well meets the requirements of ch. NR 812, Wis. Adm. Code. If it appears that the cause of the exceedance is due to construction deficiencies, corrective action to remediate the deficiencies shall be taken.

#### A.6.2 Determine Risk

Risk is related to the type and size of population served (for example: transient, overnight, elderly, etc.). To assess the potential health risks to persons served by the system, consider the possibility of an infant or any female who is or may become pregnant ingesting high nitrate water at a certain facility. Facilities which serve infants or any female who is or may become pregnant such as day care centers or public health facilities or other systems that serve a population that are perceived to be vulnerable are considered high risk. It should be noted that facility type alone gives no guarantee of the risk of that facility. The determination of risk is a case-by-case determination, made by the field DG specialist or in consultation with city/county staff in “contract counties” where appropriate.

#### A.7 Conditions to Serve High Nitrate Water: 10.5 – 20.49 mg/L Nitrate

The decision to allow a TN system to continue to provide water for consumption above 10.5 mg/L nitrate shall be made by district staff. If appropriate, concurrence should be obtained from the DG field supervisor. This decision may be made following consultation with the city/county staff in “contract counties” where appropriate.

If the Department determines the system may continue to operate, field DG staff or contract city/county staff will advise the owner/operator of the conditions in writing. All conditional requirements should be stated in the NON, which is to be mailed to the TN system within 30 days of the nitrate MCL violation date. Field DG staff shall be copied on any NONs sent by contract counties. The standard conditions are as follows:

- a. Well construction and pump installation shall comply with ch. NR 812, Wis. Adm. Code.
- b. TN system owners shall comply with all monitoring requirements.
- c. Water will not be available to infants and any female who is or may become pregnant. A supply water from a known safe source that meets the MCLs for nitrate and coliform bacteria shall be provided for at risk populations and for those that request alternative water.
- d. There shall be continuous posting of the fact that nitrate exceeds 10 mg/L and the potential health effects of exposure.
- e. No adverse health effects will result, as required in NR 809.11(3), Wis. Adm. Code.
- f. Notify local health and state health department authorities annually of nitrate levels that exceed 10 mg/L.

Transient non-community systems on continuing operation shall recertify annually that the water system meets the conditions of s. NR 809.11(3), Wis. Adm. Code. Annual re-certification requires district DG environmental program associate (EnPA) or city/county staff to send a notice of noncompliance to systems on continuing operation each year along with an updated PN for posting at the facility and a certification statement to certify that the current PN is posted. The system shall sign and date the provided certification statement or an alternate certification statement and return it to the department or contract city/county along with a copy of the posted PN. If the system chooses to use a different certification statement or PN, it shall be approved by the department prior to submittal or posting. A copy of the documentation sent to the system as well as what is returned by the system shall be provided to the appropriate district DG EnPA for data entry into the Drinking Water System (DWS). A linked PN violation will be generated by the DWS if a completed certification statement is not received from the system within the required timeframe provided in the DWS. Systems that do not meet these

conditions shall take corrective action to provide a code-compliant water source and shall be instructed to follow the tiered approach outlined below in *A.8.1 Assessment and Recommendation*. More detailed procedures are described below.

The Wisconsin Department of Health Services recommends people of all ages avoid long-term consumption of high nitrate water because it is linked to certain chronic diseases. Continued operation is not intended to be permanent.

#### A.8 Nitrate Violations > 20.5 mg/L, High Risk Facilities, and Facilities that fail to satisfy conditions of NR 809.11(3)

If a sample is  $\geq 20.5$  mg/L, a confirmation samples shall be collected within 24 hours. If it can't be, the system must issue a Tier 1 PN and collect the sample within 14 days of notification of the result. If the average of the compliance and the confirmation sample is  $\geq 20.5$  mg/L, enforcement action shall be initiated. The system must also issue a Tier 1 PN as outlined in A.5. Because of the severity of this noncompliance, the enforcement action is handled by the Department even if the system is located within a "contract county" jurisdiction. The field DG specialist shall prepare a secondary enforcement request for a Notice of Violation, enforcement conference, and consent order or administrative order.

If the average of the compliance and confirmation is less than 20.5 mg/L, the field DG specialist or city/county staff shall instruct the owner to conduct quarterly sampling for one year and evaluate the results. If the average of any 2 samples collected during a one year period is  $\geq 20.5$  mg/L, the same follow-up would be required for systems issued a violation for exceeding 20 mg/L nitrate.

For nitrate violations  $\geq 20.5$  mg/L, the owner shall take the following actions while the well remains on-line:

- Provide an alternative safe source of water to all consumers of water within 24 hours of receiving the results, and,
- Continue to PN until the violation is resolved, and,
- Continue quarterly sampling until the violation is resolved.

All actions/requirements shall be documented in the consent order or administrative order.

##### A.8.1 Assessment and Recommendation

Field DG staff shall advise owners to use a tiered approach when evaluating compliance options. At a minimum, owners shall be required to evaluate construction of a replacement well and/or reconstruction of an existing well and connection to an alternate safe water source, including source water blending. Treatment shall only be recommended for evaluation after these three preferred options are fully evaluated and the department determines that an alternative safe supply of water is not available or if the Department grants a variance to s. NR 812.37, Wis. Adm. Code. Evaluation of treatment options shall be limited to Point-of-Entry systems only. (Note: The Department is currently investigating Point-of-Use (POU) as a treatment option. Suggestions for when to consider POU and the potential monitoring requirements are included as an appendix to this guidance. POU may only be considered following consultation between Field and Central office staff and may only be implemented under an order.)

## Resolution Process

Field EE and DG staff shall schedule an enforcement conference and meet with the owner to discuss compliance options as soon as the Department becomes aware that a TN system no longer qualifies for continuing operation because the average of an initial and a confirmation sample exceeds 20 mg/L or the system no longer meets the requirements of s. NR 809.11(3), Wis. Adm. Code. The Department shall explain the compliance options and ask the owner to sign a compliance agreement<sup>3</sup> or consent order to establish a time frame to investigate their compliance options and submit a report to the Department that proposes a corrective action plan [Note: Please refer to the consent order template for more information on the tiered approach to determine a corrective action]. The consent order shall also establish a time frame for the system owner to implement the corrective action plan and ultimately return to compliance. Field DG and EE staff shall track enforcement action, milestone dates for the consent order, and request EnPAs update the DWS when new wells are constructed, when treatment is installed and actions are taken that address violations. In some cases, a system owner may be unwilling to comply and an administrative order or referral to the Department of Justice may be required.

The Department shall ask the owner to use the following evaluation process and to submit an evaluation sheet with supporting material to document the investigation of the different options and the proposed option for corrective action. Only after the supporting material and evaluation material has been submitted may the Department evaluate the feasibility of the preferred options.

## Evaluation Process for the Preferred Options

### I. Constructing/reconstructing a well

A system is required to determine if they can construct a new well or reconstruct an existing well to obtain a source that meets drinking water standards. The owner, with support from staff, shall investigate to see if nitrate and bacteriological sample results and well construction data are available for nearby private or public wells. Potential sources for this information are neighboring well owners, USGS or other data bases, or well drillers. Field DG staff may request assistance from central office DG and Groundwater staff. Field DG staff may access public water and GRN data bases to determine if safe water exists at a lower depth. Field DG staff may compare well construction reports, geologic data and land use activities of wells in the surrounding area. In some cases it may be advantageous for a representative of the TN system to collect samples from surrounding private wells. Field DG staff shall provide the owner with available information on sampling history, well construction, geologic data (aquifers available, groundwater flow direction) and land use practices. The information obtained during this evaluation may be used to satisfy the requirements of s. NR 812.37(2)(e), Wis. Adm. Code regarding determination of availability of an alternative safe water source. If the data shows that an alternate safe water source is available, the owner shall obtain estimates on construction of a replacement well, or reconstruction of an existing well. In situations where

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<sup>3</sup> It may not be necessary to develop a consent order if corrective actions can be completed within 180 days

no data is available, DG Field staff shall discuss/advise the system owner of possible options for obtaining data; however, the Department does not have the resources available to collect data on the behalf of the system owner.

II. Connecting to an alternate safe water source

The owner shall evaluate whether it is feasible to connect to an alternate safe water source, such as a municipal water system, or other public water system, or another well that complies with ch. NR 812, Wis. Adm. Code. If it is feasible, the owner shall obtain estimates on the cost of connecting to the alternate water source.

After reviewing the evaluation sheet and supporting material which should include a cost analysis the field DG specialist will determine if the preferred options are feasible. If all of the preferred options are possible solutions, the owner may select and implement the most cost effective approach (i.e. installation of a new well, reconstruction of an existing well, or connecting to an alternate safe source of water). If the field DG specialist determines that the preferred options are not feasible, the field DG specialist shall advise the system owner to evaluate treatment options.

Decisions shall be documented in a letter that summarizes the specifics and the basis for the decisions.

#### Consideration of Installation of Treatment

System owners may evaluate treatment installation as a means of returning to compliance. However, per s. NR 812.37(2)(f), Wis. Adm. Code, "The installation of a water treatment device shall supplement and not replace proper well location, construction and water supply protection." Therefore, it is only appropriate to install treatment on a well that meets all construction standards of Chapter NR 812, Wis. Adm. Code. Note that treatment shall be considered with the knowledge that if a treatment system should fail, consumers may be exposed to extremely high concentrations of nitrate without warning. Treatment options shall conform to the s. NR 809.04 (2), Wis. Adm. Code definition of a "best available technology" and cost as well as efficacy shall be considered when evaluating options. Treatment devices may only be installed after review and approval by the Department of Safety and Professional Services (DSPS). A TN system that installs DSPS approved treatment, and demonstrates the effectiveness of that treatment device through sampling, shall no longer have to meet the conditions of s. NR 809.11(3), Wis. Adm. Code to continue to operate. It is recommended that field DG staff review long-term maintenance obligations and increased frequency of monitoring (quarterly at a minimum) required when treatment is necessary to achieve compliance.

The terms and conditions of treatment installation are to be agreed upon in a consent order or administrative order prior to the installation of treatment for MCL compliance at a non-community water system. A request should be made to central office staff to generate the additional monitoring requirements in the DWS.

#### Installation of point-of-entry treatment

- Point-of-entry (POE) treatment systems treat all raw water before it enters the distribution system. Treatment requires ongoing operation and maintenance after installation and will involve

escalated monitoring requirements for the duration of the time the treatment is needed to comply with all the requirements of NR809 requirements. In addition, the Department shall establish monitoring requirements that assure proper operation and maintenance of the treatment system. The TN system shall be required to monitor nitrate concentrations in treated water quarterly and collect raw water samples no less than annually. The DWS shall be updated to indicate that a treatment device is being used and to generate the additional monitoring requirements.

- In certain situations, a system may not be required to treat all incoming raw water with POE treatment. These situations may include non-contact cooling water, water used for irrigation, etc. However, please note that appropriate cross-connection control measures are required between any potable and non-potable water piping.

The system owner shall provide Field DG staff with their proposed treatment option and the analysis supporting that proposal. The system owner shall include the following items in their submittal:

1. Full evaluation of new well, reconstruction of existing well, and alternate water source options, including costs and basis for determining these options are not available.
2. Full evaluation of all treatment options, including DSPS approval status, costs and feasibility. (Only DSPS approved treatment devices may be considered for Department approval.) The cost analysis for each treatment option should include capital costs, sampling costs and operation and maintenance costs projected for a 10-yr period.
3. Identify and justify the proposed compliance option.

Field DG staff shall follow up with the system owner if the report is not complete, or there are questions. Field DG staff may work with central office groundwater staff when reviewing well recommendations. Field DG staff shall respond to the system owner with a written decision.

The system owner shall complete the Department approved corrective actions within the time frames agreed upon and outlined in the compliance agreement, consent order, administrative order, or administrative forfeiture order. When a consent order is being developed, the time frames for corrective action are negotiable. For example, if the Department is able to make a casing recommendation for constructing a well that will produce a compliant source of water, but the system owner needs time to obtain funding for well construction, the Department may enter into a long-term agreement (1-3 years) for the system owner to construct the well, as long as interim steps are taken to provide a compliant water source during that time frame.

#### A.8.2 Return to Compliance Determination

##### Replacement Well or Reconstructed Well

If a TN system with a MCL violation installs a replacement well or reconstructs an existing well, the system shall be considered in compliance when the initial sample result following completion of any corrective action is less than the 10 mg/L nitrate MCL. Due to rounding, this means the result has to be 9.49 mg/L or less. The system shall take a confirmation sample per s. 809.115(4)(f), Wis. Adm. Code if

the initial sample result is 9.5 mg/L or greater. If the average of the initial and confirmation sample result is 9.5 mg/L or greater, the violation continues and further action is required.

#### Connection to an Alternate Source

A TN system may return to compliance by connecting to an alternate water source, if that source meets all of the following 4 conditions:

1. The source is located within a compliant public water system or is a well that complies with ch. NR 812, Wis. Adm. Code
2. Nitrate concentration is less than or equal to 10.49 mg/L
3. Nitrite concentration is less than or equal to 1.49 mg/L and
4. No total coliform or *E. coli* bacteria is present

The system is considered in compliance once it is disconnected from the non-complying source, is connected to the compliant system or source, and the non-complying source has been properly abandoned.

#### Point of Entry Treatment

If a TN system installs DSPS site-specific approved POE treatment, the system shall be considered in compliance when the results of four consecutive quarterly entry point samples taken after treatment device installation are reliably and consistently less than the 10 mg/L nitrate MCL. Due to rounding, this means each result has to be 9.49 mg/L or less. If any of the four consecutive quarterly entry point nitrate samples are 9.5 mg/L or greater, the system shall take an entry point nitrate confirmation sample per s. 809.115(4)(f), Wis. Adm. Code. If the average of the initial quarterly nitrate sample and the confirmation sample is 9.5 mg/L or greater, the system may not be returned to compliance and additional corrective action(s) shall be taken.

#### A.9 TN Systems that voluntarily install treatment

The Department has the discretion to allow TN systems with nitrate levels that exceed 10 mg/L, but are less than 20 mg/L, to continue to operate as long as the system meets the conditions in s. NR 809.11(3), Wis. Adm. Code. Some TN system owners have opted to voluntarily install treatment to reduce nitrates. Per s. NR 812.37(3)(d), any water treatment device intended to prevent contaminant levels in excess of primary drinking water standard in a non-community water system must be approved prior to installation. At a minimum, the system owner must obtain site-specific approval from DSPS prior to installing treatment. If a TN system owner does not go through the Department approval process (tiered approach [A.8.1]), the Department shall advise them that they must meet the conditions of s. NR 809.11(3), Wis. Adm. Code to continue to operate, and that the Department will require them to take additional corrective actions if nitrate levels are confirmed to exceed 20 mg/L. The Department shall require these systems to collect compliance samples for nitrates **upstream of** the unapproved treatment devices.

*This document is intended solely as guidance and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations and is not finally determinative of any issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.*