



# GROUNDWATER QUALITY

## Groundwater Management Area

Since 1985, the Lower Platte North NRD has been monitoring nitrate levels across the district. In certain areas of the district, nitrate levels have already exceeded the health standard of 10 parts per million, and in other areas contamination seems to be on the rise. This was the major impetus for the creation of the Ground Water Management Area in 1997.

Excessive nitrates in drinking water, often linked to irrigated row crop production, can endanger pregnant women and infants by interfering with the oxygen-carrying capacity of the blood. Some studies have also linked excessive nitrate consumption with increased incidence of gastrointestinal cancer, but these reports remain unconfirmed.

To help correct the rising nitrate levels in our groundwater, the NRD has set requirements for producers who use fertilizer in the district.

Currently, the majority of the Management Area is in Phase I, which emphasizes education about fertilizer use. There are two Phase II areas near Richland/Schuyler and Bellwood, and a Phase III are in the Richland/Schuyler area.

## Phase I Requirements (Nitrate-Nitrogen 0-8 parts per million)

- Operators using any type of fertilizer must become certified every 4 years.
- Water well permits are required for all new and replacement wells with a capacity greater than 50 gallons per minute. In certain designated areas, well permits may also be required for wells pumping less than 50 gallons per minute (please contact the NRD for details).
- The amount of organic fertilizer (liquid or dried manure, sludge, or composted organic waste) allowed per acre per year will be based on the method of collection and storage, land application method, type of crops or cover crops, soil types, landscape features, source of manure, and previous manure application rates.
- No fall application of commercial nitrogen fertilizer permitted on non-sandy soils until after **November 1** (for row crops).
- Fall and winter applications of commercial nitrogen fertilizer is prohibited on sandy soils. Commercial fertilizer can be applied on sandy soils after **March 1** (for row crops).

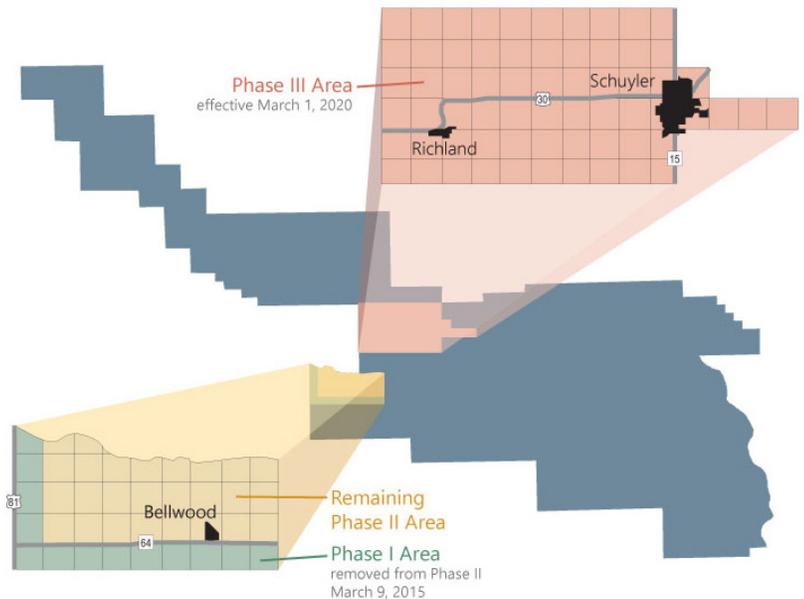
A groundwater analysis for nitrate-nitrogen ( $\text{NO}^3$ ) content is encouraged at least once every four years for irrigation, municipal and industrial wells. Results may be reported to the NRD by **December 15** of the year the analysis was performed.

## Phase II Additional Requirements (Nitrate-Nitrogen 8-10 parts per million)

- All requirements from Phase 1 apply.
- Groundwater analysis, deep soil samples and fertilizer application reports required annually by **December 15**.

## Phase II Requirements continued

- Commercial nitrogen fertilizer only permitted on non-sandy soils from **November 1** to **March 1** if approved inhibitor is used at recommended rates.
- Operators applying commercial fertilizer from **November 1** to **March 1** must furnish records from their dealer that an approved inhibitor was used as recommended.
- Use of fertilizer calibration meters will be encouraged for all fertilizer applications.
- Water applications must be monitored to allow for better management of fertilizer application and to control leaching of nitrate (phased in over 4 years).
- The amount of organic fertilizer (liquid or dried manure, sludge, or composted organic waste) allowed per acre per year will be based on the method of collection and storage, land application method, types of crops or cover crop, soil types, landscape features, source of manure and previous manure application rates. The amount and timing of applications must be adjusted to the nitrate concentration in the soil profile and groundwater content. Application will be allowed on frozen soils on site-by-site basis only.



## Phase III Additional Requirements (Nitrate-Nitrogen 10-15 parts per million)

- All requirements from Phases 1 and 2 apply.
- Application of commercial nitrogen fertilizer will be prohibited in fall and winter on all soils until after March 1. Spring applications of commercial nitrogen fertilizer will require split application (pre-plant and side-dress) or the use of an approved inhibitor applied as recommended. (Use of an approved inhibitor is also required on split applications where 50% or more is applied as pre-plant).
- If 50% or more of commercial nitrogen fertilizer is applied at pre-plant, then operators are required to furnish records from their dealer that an inhibitor was used at recommended rates.

## Phase IV Additional Requirements (Nitrate-Nitrogen 15+ parts per million)

- All requirements from Phase 1, 2 and 3 apply.
- Split application is required. A maximum of 80 lbs. of Nitrogen is allowed prior to May 1.
- Nitrogen recommendations must not exceed LPNNRD requirements.
- Meters are required on all high capacity wells.
- All irrigation wells must follow acre-inch allocations.
- LPNNRD staff will work directly with producers in this area.

*The full text of the LPNNRD's Groundwater Management Area Rules and Regulation is available for download on our website at [www.lpnnrd.org](http://www.lpnnrd.org).*