IOWA DEPARTMENT OF NATURAL RESOURCES

Nutrient Reduction Strategy

For Wastewater Treatment Plants

The Iowa Nutrient Reduction Strategy is a science- and technology-based approach to assess and reduce nutrients delivered to Iowa waterways and the Gulf of Mexico. The strategy outlines efforts to reduce nutrients in surface water from point sources, such as municipal and industrial wastewater treatment plants, and nonpoint sources, including farm fields and urban areas, in a scientific, reasonable and cost-effective manner.

The Iowa strategy was developed in response to the 2008 Gulf Hypoxia Action Plan, which calls for the 12 states along the Mississippi River to craft strategies to reduce nutrients reaching the Gulf of Mexico. The Iowa strategy follows the recommended framework provided by the U.S. Environmental Protection Agency (EPA) in 2011. The DNR will work with wastewater facilities throughout the state to reduce nutrient discharges from point sources with a goal of reducing total phosphorus by 16 percent and total nitrogen by 4 percent. In addition to impacting the Gulf, nutrients also negatively affect local Iowa receiving streams. Nutrient reduction will help better protect those streams, especially during low flows.

WHAT FACILITIES ARE AFFECTED?

- 102 major municipal and 46 industrial wastewater facilities where biological nutrient removal is economically and technically feasible.
- Minor municipal wastewater facilities (less than 1 million gallons per day) will evaluate nutrient reduction alternatives when increasing design loads.
- Major industrial treatment plants that do not have biological treatment will assess nutrient removal possibilities during regularly scheduled permit renewals.

HOW WILL NUTRIENTS BE REMOVED?

- Biological nutrient removal, or BNR, was considered in this strategy. Other options for nutrient removal are available and can be evaluated.

HOW WILL THIS BE IMPLEMENTED?

- When a National Pollutant Discharge Elimination System (NPDES) permit is renewed, the permit will require that the facility conduct a two-year study to evaluate the costs and feasibility of installing biological nutrient removal and submit a proposed schedule for installation. After the study is completed, the schedule will be incorporated in the facility's NPDES.
- Timeframes for construction will be based on the negotiated schedules for major municipal and certain industrial facilities, case by case.

HOW ARE LIMITS SET?

- Technology-based limits will be implemented in a facility's NPDES permit. Many nutrient removal technologies are feasible, as they are already proven and well-established.
- Limits will be no more stringent than 10 mg/L for total nitrogen and 1 mg/L for total phosphorus.
- In general, these levels of nutrient reduction are technically and economically achievable for Iowa facilities.

HOW WILL COMPLIANCE BE DETERMINED?

- After BNR is installed and operational, the facility will have one year to conduct a process optimization evaluation prior to limits being established.
- Total nitrogen and phosphorus limits will be based on demonstrated plant performance, but no more than 10 mg/L (nitrogen) and 1 mg/L (phosphorus).
- Plants will be protected from stricter limits for 10 years if nutrient removal is installed.
- The facility will have monthly limits for nitrogen and phosphorus discharged. Compliance will be determined by the annual average, rather than by the monthly limits.

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