



# 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 2013 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. In addition to impacting the Gulf, excessive amounts of nutrients can also negatively affect local Iowa streams. Nutrient reduction by wastewater dischargers will protect and improve water quality in those streams, especially during low stream flow periods when point sources have the greatest impact. The Iowa strategy follows the recommended framework provided by the U.S. EPA in 2011. The DNR is working with wastewater facilities statewide with a goal of reducing the amounts discharged by point sources by at least 11,000 tons of nitrogen and 2,170 tons of phosphorus per year. This represents a reduction in the estimated statewide amounts of nutrients discharged to Iowa waters from point and nonpoint sources by 4% for nitrogen and 16% reduction in phosphorus.

### WHAT FACILITIES ARE AFFECTED?

- All major municipal wastewater facilities, major industrial facilities and minor industrial facilities that utilize biological treatment.
- Minor municipal wastewater facilities (less than 1 million million gallons per day) are required to evaluate nutrient reduction prior to constructing new or expanded facilities.
- Minor industrial facilities that do not utilize biological treatment are required to evaluate nutrient reduction if proposing to discharge higher amounts of nutrients.

### WHAT REDUCTIONS WILL FACILITIES BE EXPECTED TO ACHIEVE?

- Total nitrogen effluent concentrations of 10 mg/L or 66% removal
- Total phosphorus effluent concentrations of 1 mg/L or 75% removal

### HOW WILL NUTRIENTS BE REDUCED?

- Biological nutrient removal is the most common means for reducing nutrients but the Strategy does not dictate what process or combination of processes are utilized. Chemical phosphorus removal, operational changes and changes to industrial processes are other alternatives likely to be considered.

### WHEN WILL THIS BE IMPLEMENTED?

- When a facility's NPDES permit is renewed, the permit will require a 2 year study to document current nutrient discharge levels, establish baselines and evaluate the feasibility and reasonableness of installing nutrient removal.
- The study must also include a schedule for construction and implementation of new technology. Once the schedule is approved by the DNR, it will become a requirement of the facility's permit.
- Schedules for implementation of practices or completing construction will vary from months to many years depending on the extent of needed changes and financial considerations.

### HOW AND WHEN ARE LIMITS SET?

- Once a facility can be expected to achieve the nutrient removal goals, technology-based nutrient limits will be established in their permit.
- Limits will be based on 12 months of demonstrated plant performance and will be established after 6 months of plant optimization.
- Nitrogen and phosphorus limits will be expressed as annual averages rather than monthly averages and daily maximums.

### WHAT PROGRESS HAS BEEN MADE?

- Annual progress reports can be accessed at: <http://www.nutrientstrategy.iastate.edu/documents>

[WWW.NUTRIENTSTRATEGY.IASTATE.EDU](http://WWW.NUTRIENTSTRATEGY.IASTATE.EDU)

#### GENERAL QUESTIONS

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