

Current and Future Wild Rice Sulfate Water Quality Standard Implementation

Sulfate is a chemical commonly found in air, soil and water. It can be found at varying concentrations in discharges from permitted facilities such as mining facilities, wastewater treatment plants and other industrial facilities. Water quality standards addressing sulfate concentrations are found in Minnesota's Class 1 drinking water standards, and Class 4 agriculture and wildlife standards.

The Class 4 sulfate standard of 10 mg/L was adopted into Minnesota Rule in 1973 to protect "water used for production of wild rice during periods when the rice may be susceptible to damage by high sulfate levels" (Minnesota Rules 7050.0224, Subpart 2). Based on testimony presented at public hearings leading to the adoption of this sulfate standard, it was intended to apply to waters with natural wild rice stands and waters used for paddy wild rice production.

There has been limited past implementation of the wild rice standard in permits. The single NPDES permit with a sulfate limit up until recently was the Minnesota Power and Light Clay Boswell power plant on the Mississippi River at Cohasset. Recent implementation of the standard has become much more high profile, contentious and open to varied interpretation. This has been the result of more actively implementing Class 3 and 4 water quality standards along with the recognition of high sulfate discharges from mining and other industrial and municipal permitted facilities and the presence of wild rice in downstream waters. For these reasons the Agency has been striving to clarify current and future implementation of the wild rice sulfate water quality standard. The following narrative discusses a direction forward for standard implementation in both the short and longer term. The intended audience for this document is external parties especially those holding NPDES permits.

Current Status: Sulfate Standard

The 10 mg/L sulfate standard is the numeric criteria needing to be met in "water used for production of wild rice." Effluent limits are established on this basis. There are essentially three components to the standard, as follows:

1. The specification that it applies to "water used for production of wild rice",
2. The numeric sulfate criterion of 10 mg/L, and
3. The specification that the standard is applicable during "periods when the rice may be susceptible to damage by high sulfate levels".

Each of these components has been the subject of recent questions and discussion. The determination of a "water used for production of wild rice" is being made on a case-by-case basis with specific considerations for the various life stages of plant development. The 10 mg/L sulfate standard is applicable during "periods when the rice may be susceptible to damage by high sulfate levels". In recent mining discharge discussions (Mesabi Nugget and PolyMet, Partridge and Embarrass River watershed, respectively) the time period of wild rice sensitivity to high sulfate was considered as April through August. This same time period is expected for other river wild rice receiving waters but will need to be verified in each case. Lake wild rice stands will need to be considered separately.

Current Status: Sulfate Requirements in NPDES Permits

The MPCA currently has limited information about sulfate concentrations in discharges for most NPDES permitted facilities. To address this, the MPCA is obtaining sulfate data from facilities through application of the “NPDES Strategy for Salty Dischargers” guidance. The continued implementation of the salty discharge monitoring requirements into permits will result in significantly more sulfate data in the future.

In accordance with guidance, monitoring for sulfate and other “salty” parameters is being added to NPDES permits as they come up for reissuance or as new permits are issued. Where elevated effluent sulfate levels are suspected, but sulfate data are not available, sulfate monitoring is required upon permit reissuance either through continued implementation of the salty discharge monitoring guidance or other discharge-specific sulfate monitoring requirements. Implementation of the salty discharge monitoring requirements into permits began during the summer of 2009. Based on the five year permit cycle, it will be approximately four years before all facilities that meet the monitoring criteria spelled out in the guidance will have the sulfate monitoring requirement added to their permits.

Sulfate data collected in the interim years will be reviewed during routine compliance inspections, annual compliance reports and/or during permit reissuance. If monitoring data collected during the permit cycle indicate a reasonable potential to cause or contribute to an exceedance of the sulfate standard for wild rice, the permittee will be required to submit application for a permit modification and a compliance schedule (if appropriate) will be added to the permit to ensure progress towards meeting the standard. The compliance schedule will contain a requirement that the facility either demonstrate compliance with the standard as soon as possible or submit a variance request with the application for permit reissuance.

Where sulfate effluent data are available for a new or existing discharge, these data are evaluated during the permitting process. Facilities with data that indicate reasonable potential to cause or contribute to an exceedance of the sulfate standard for wild rice are assigned effluent limits accordingly. The first step in this process is the determination if the discharge will affect waters used for production of wild rice. Where waters are determined to be used for production of wild rice, a reasonable potential analysis is completed using the available sulfate effluent and receiving water monitoring data. If reasonable potential is found, a sulfate effluent limit is developed for inclusion in the permit, along with a compliance schedule if appropriate. Note that in accordance with federal law, compliance schedules may not be used for new dischargers.

Next Steps: Sulfate Standard Revision

Revisions to the sulfate standard for wild rice are being considered as part of the 2012 Triennial Review. The Class 3 and 4 standards, including the wild rice standard, are included in the scope of potential revisions. Please see the “Timeline for Wild Rice Based Sulfate Water Quality Standard Review” document for more information about current and future considerations to the sulfate standard for wild rice.