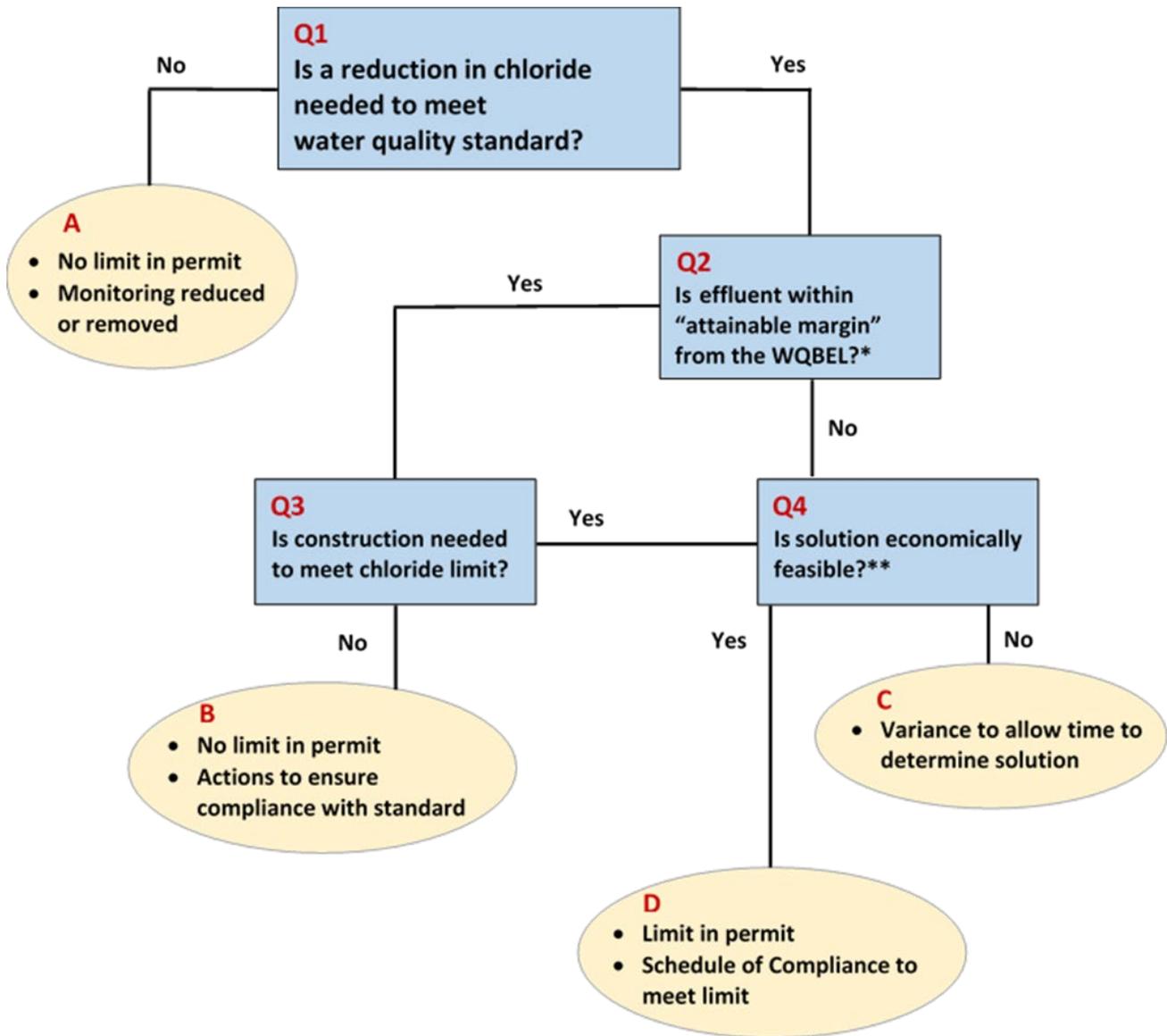


# Chloride permitting decision tree



\* "Attainable margin" a numeric threshold or by the anticipated chloride reduction due to implementation of specific actions. See the [Chloride Work Group Policy Proposal](#) for details.

\*\* Municipalities may use the Minnesota Pollution Control Agency (MPCA) variance eligibility tool to evaluate the economic feasibility of a solution. See the policy proposal for details.

## Explanation of chloride decision tree elements

The decision tree is comprised of questions labeled by number – Q1, Q2, Q3 and Q4 – and outcomes labeled by letter – A, B, C and D. The following information provides context and guidance on how questions and outcomes are to be interpreted and realized in applicable permits.

### Question 1: Is a reduction in chloride needed to meet the water quality standard?

The Effluent Limits Unit at the MPCA will conduct an analysis to determine whether the wastewater discharge has the reasonable potential to cause an exceedance of the applicable chloride water quality standard. To complete this analysis, the MPCA must have a minimum of two years of effluent chloride monitoring data.

### Outcome A: No limit, monitoring reduced or removed

If there is no reasonable potential, then there will be no limit for chloride in its wastewater discharge permit. The MPCA may maintain, reduce or remove the facility's required monitoring for chloride in its effluent, depending on the chloride concentration, variability, and quality of data.

### Question 2: Is the effluent within an attainable margin from the WQBEL?

The intent of this question is to identify whether actions conducted within the upcoming permit cycle can eliminate the reasonable potential to exceed the chloride standard.

"Attainable margin" may be defined by:

- A numeric threshold
- Anticipated chloride reduction due to implementation of specific actions

### Numeric threshold

The data used in the numeric determination needs to be representative of the current potential discharge from the facility, typically the most recent five years or all available data. When examining the data, the MPCA may take into account major changes in source chloride loading or treatment processes.

The numeric estimate of "attainable margin" is as follows:

- Measured maximum effluent chloride concentrations are within 100mg/L of the predicted monthly average chloride effluent limit
- Measured average effluent chloride concentrations are within 50 mg/L of the predicted monthly average chloride effluent limit

### Implementation of specific actions

A facility may also be within the "attainable margin" if it has specific documented plans to complete work to eliminate reasonable potential within the first year or two of the upcoming permit cycle. In this case, the agency could reasonably estimate that following implementation of the activities, effluent would not continue to exceed the standard.

### Question 3: Is construction necessary to meet the *chloride* limit?

Construction, in the context of this question, refers to construction projects directly related to the reduction of chloride. This could include construction at the drinking water treatment plant or WWTP facilities.

If the answer is "Yes," then proceed to Question 4.

A facility may answer "No" to Question 3 if:

- Chloride reduction projects do not require construction
- Construction is planned to address a pollutant *other than chloride*

For instance, a facility may alter phosphorus removal processes, which in turn, may reduce the need for using chloride-containing additives.

If the answer is "no," then proceed to Outcome "B."

## **Outcome B: No limit but actions to ensure compliance with chloride standard**

Under this scenario, the permittee must provide technical justification and support to the MPCA to ensure that its chloride-reduction actions will eliminate reasonable potential within a specified period of time. The project will need to be implemented in three years or less to ensure that MPCA has at least two years of effluent data (after completion of the actions) in order to conduct a reasonable potential analysis for the next permit cycle.

The facility will **not** receive a chloride limit in its permit, but the facility will need to:

- Continue to monitor chloride
- Complete a chloride management plan
- Provide updates to the MPCA on predetermined projects related to chloride reduction

## **Question 4: Is the solution economically feasible?**

Permittees may use the MPCA's variance screening calculator to determine economic feasibility. Treatment for chloride at the end of the wastewater treatment plant is not economically feasible, according to MPCA's "Alternatives for addressing chloride in wastewater effluent" (Appendix B). As such, the variance-screening calculator assumes the cost of centralized drinking water softening; either through a lime or reverse osmosis process. Centralized softening may reduce or eliminate the need for home ion exchange (sodium chloride) softening.

If the solution is unknown at the time of permit issuance/reissuance, then a permittee can still use the variance screening calculator tool to determine the economic feasibility of implementing any solution to comply with the chloride standard.

## **Outcome C: Variance to allow time to determine solution**

If the solution is not economically feasible, the permittee may apply for a variance. The variance provides time for wastewater permittees to move toward attainment of a WQBEL. A variance allows the permittee to discharge in excess of the designated WQBEL for the period specified in the control document. A variance will contain an interim limit and a chloride management plan as directed through a "schedule of compliance activities":

- The interim limit will be equivalent to the maximum effluent chloride concentration recorded in discharge monitoring reports during the previous period of record. The interim limit reduces the authorized load of chloride to the receiving water and ensures that pollutant loading does not increase.
- The schedule of compliance activities, or chloride management plan, will require the permittee to explore chloride sources and the potential for reductions throughout the course of the variance.

For chloride, the MPCA is exploring a streamlined variance process in which applicability criteria are made available at a public meeting. For most communities, chloride sources and potential solutions are similar, and costs are reasonably scalable by population. Predetermined eligibility criteria will provide more certainty for communities and lower administrative costs for permittees and the MPCA. The schedule of compliance activities will also be standardized to the extent possible.

## **Outcome D: Chloride limit in permit with Schedule of Compliance**

If the community plans to build a centralized drinking water softening facility, the need for home and business softening may be significantly reduced or eliminated. Within a reasonable degree of certainty, the MPCA may estimate the anticipated chloride reduction due to this change. The permit will contain a schedule of compliance with a duration as soon as possible to meet the effluent limit. The permittee will be required to comply with the final effluent limit after completion of the actions outlined in the schedule. As part of the schedule of compliance, the permittee will also be required to complete a chloride management plan.