

Central Valley Regional Water Quality Control Board

TO: Pamela C. Creedon, Executive Officer
Central Valley Water Board

FROM: Cindy Forbes, Deputy Director
Division of Drinking Water 

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SUBJECT: SAMPLING AND COMPLIANCE WITH MCLS WHEN APPLYING THEM AS OBJECTIVES IN WASTEWATER REGULATORY PROGRAMS

The Central Valley Water Board's Basin Plans establish Primary and Secondary Maximum Contaminant Levels (MCLs) as water quality objectives for surface and groundwater within the Central Valley. The Basin Plans do not; however, describe how the objectives are to be applied when determining compliance with water quality objectives.

Central Valley Water Board surface and groundwater programs seek to implement objectives that are fully protective of the beneficial use and are not applied in an overly stringent manner. In this case, the beneficial use is municipal and domestic supply, and the objectives are Primary and Secondary MCLs.

Central Valley Water Board staff have been meeting with me and the Division of Drinking Water staff to determine how best to interpret the MCLs when implementing its regulatory programs for waste dischargers and monitoring ambient waters to ensure protection of public health for primary MCLs and public welfare and consumer acceptance for secondary MCLs.

The following is a summary of the decisions made during our discussions.

Dissolved Fraction vs. Total Fraction of Sample When Comparing to Primary and Secondary MCLs

- Primary MCLs are established to protect public health from acute and chronic effects of bacteriological, chemical and radiological constituents in drinking water.
- Secondary MCLs help to ensure "consumer confidence" and public welfare in delivered drinking water, and are based on preventing objectionable taste/odors and also preventing costs associated with potential staining and corrosion of pipes, fixtures, valves and other plumbing materials.
- Division of Drinking Water evaluates compliance with MCLs based on samples collected at either individual wells, treatment facilities or the point of distribution to essentially evaluate the quality of the water that will be delivered to a customer "at the tap."

- For surface water, this means that in nearly all cases the water has been coagulated, filtered, and disinfected at a permitted drinking water treatment plant prior to sample collection.
- For a groundwater, a community water system's source has been pumped from a relatively deeper aquifer when compared to the shallower monitoring wells used in the wastewater program and, therefore, suspended solids levels would be negligible.
- All Central Valley Water Board programs are essentially source control programs, as they do not regulate delivered domestic water. Therefore, compliance with MCLs for Central Valley Water Board programs should reflect a similar quality and nature of filtered surface water or pumped from an aquifer that has negligible solids.
 - For this reason, Division of Drinking Water staff and Central Valley Water Board staff agree that compliance with the dissolved fraction of MCLs in source waters is fully protective of the MUN beneficial use.
- Sampling for these constituents in groundwater can be complicated because of changing ambient conditions. Also, monitoring wells used in wastewater compliance determinations do not operate on a frequent basis, have lower flow rates and entrance velocities and therefore, may contain higher than expected solids content when compared to samples drawn from municipal wells. Because of this, Division of Drinking Water and Central Valley Water Board staffs agree that sampling procedures for wastewater compliance determinations should be based on the dissolved fraction within the aquifer (source water) and that filtration of the sample should occur in the field at the well sample location immediately prior to sample preservation to remove solids. This will insure that samples are representative of the dissolved fraction in the source water, and also mimic the negligible suspended solids conditions expected for municipal and domestic wells.

Averaging periods and sampling

- Primary MCLs
 - *Nitrate*. Nitrate is an acute contaminant. For this reason, the Primary MCL for nitrate should be considered as a daily maximum. However, Division of Drinking Water rarely reacts to a single sample and requires a confirmation sample within 48 hours. The two samples are then averaged, unless there are concerns with the validity and representativeness of the first sample. This process is recommended for Water Board regulatory program sampling for nitrate.
 - *Arsenic and metals*. These constituents can be susceptible to seasonal fluctuations and in many cases are naturally occurring. For these constituents, Division of Drinking Water staff recommends annual running averages for compliance periods. In addition, to ensure that treatment systems are operated properly, it is recommended that increased sampling frequencies be required when individual sampling events are abnormally high. Division of Drinking Water staff recommend using language similar to Title 22 regulations for sampling and reporting of Primary MCL metals.

- Secondary MCLs. These constituents are not toxic contaminants and there is no public health consequence when levels exceed these objectives. Because of this, Division of Drinking Water and Water Board staffs agree that an annual averaging period is acceptable for measuring compliance with these objectives. Furthermore, during periods of drought, it is reasonable to consider longer averaging periods. This is because less desirable source waters are utilized during drought, which may have higher levels of these constituents. Again, there is no public health concern; but long-term averages are important for economic and aesthetic reasons.

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