

User's Document for Quarterly Bromate Report for Disinfection Byproducts Compliance for Systems Using Ozone

- The following reporting forms have been developed for water systems that monitor for bromate:
 - (1) Quarterly Bromate Report for Disinfection Byproducts Compliance for Systems Using Ozone (For the First Year of Monitoring Only).
 - (2) Quarterly Bromate Report for Disinfection Byproducts Compliance for Systems Using Ozone (aka Standard Form)
 - (3) Quarterly Bromate Report for Disinfection Byproducts Compliance for Systems Using Ozone (For Reduced Bromate Monitoring Only)
- During the first year of monitoring, less than 12 months of data are available and thus a running annual average cannot be determined. A special reporting form (Item 1) has been developed for use only during the first year of monitoring to clarify how compliance is determined. After 12 months of data have been collected, the standard reporting form (Item 2) should be used.
- In addition to the reporting requirements in Section 64537.2, the following data should be reported each quarter to determine bromate compliance:
 - (1) The monthly average of all bromate samples taken each month for the last 12 months to confirm proper calculation of the running annual average.
- Reporting is required within 10 days after the end of each quarter. The reporting form has been developed in such a way that the same sheet can be used throughout one calendar year.
- The reporting form can be used readily as a hardcopy. For convenience to Microsoft Excel spreadsheet users, a formula to compute the average has been embedded in the appropriate cells. Any result that is below the detection limit for purposes of reporting (DLR) should be reported as "0" (zero) so that the average can be properly calculated. Values in a given quarter's table are linked to the values entered in the preceding quarter's table such that the same values do not have to be re-entered. To prevent the accidental deletion of a formula, any cell that contains a formula and therefore does not require data entry is protected. To modify a protected cell, remove protection by using the Unprotected Sheet command (Tools menu, Protection submenu).

The following is from the state Disinfectants, Disinfection Byproducts, and Disinfection Byproduct Precursors regulation, Chapter 15.5, Title 22, *California Code of Regulations*, and applies only to monitoring of bromate for disinfection byproducts compliance. **The regulation should be referred to for the specific language and requirements.**

Maximum Contaminant Level (MCL) [Section 64533(a)]

The MCL for bromate is 0.010 mg/L.

Detection Limit for Purposes of Reporting [Section 64533(a)]

The DLRs for bromate are 0.0050 mg/L and 0.0010 mg/L (for analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0). The lower DLR is required for reduced bromate monitoring.

Monitoring Requirements [Section 64534.2(c)]

Community and nontransient noncommunity water systems using ozone shall monitor for bromate as follows:

- (1) Take one sample per month for each treatment plant using ozone. Samples shall be taken at the entrance to the distribution system while the ozonation system is operating under normal conditions.
- (2) Bromate monitoring may be reduced from monthly to quarterly, if the running annual average bromate concentration is ≤ 0.0025 mg/L based on monthly bromate measurements for the most recent four quarters, with samples analyzed using Method 317.0 Revision 2.0, 321.8, or 326.0. Monthly bromate monitoring shall resume if the running annual average bromate concentration, computed quarterly, is ≥ 0.0025 mg/L. The Division shall be notified in writing within 30 days of the change in monitoring frequency (i.e., going to reduced monitoring or returning to routine monitoring).
- (3) Note: The following are no longer in effect and will be deleted in a future rulemaking:
 - (a) Section 63534.2(c)(2) – Systems shall continue monthly bromide monitoring of the source water to remain on reduced bromate monitoring.
 - (b) Section 64534.2(c)(3)(B) – Systems shall resume routine bromate monitoring pursuant to section 64534.2(c)(1) and notify the Division in writing within 30 days of the change in monitoring frequency if the running annual average source water bromide concentration, computed quarterly, is ≥ 0.05 mg/L based upon representative monthly measurements.

Determining Compliance [Section 64535.2]

During the first year of monitoring, compliance is determined as follows:

- (1) The average of the first quarter's results shall not exceed four times the MCL.
- (2) The average of the first and second quarter's results shall not exceed two times the MCL.
- (3) The average of the first, second, and third quarter's results shall not exceed 1.33 times the MCL.

After 12 months of data are available, compliance is based on a running annual average, computed quarterly, of monthly samples (or monthly averages if more than one sample was taken during a single month). If the MCL is exceeded, the system shall comply with the requirement to notify the public and report the violation to the Division. If there is a failure to complete 12 consecutive months of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on the average of the available data.

Reporting Requirements [Section 64537.2]

The following information is to be reported to the Division:

- (1) The number of samples taken during the last quarter.
- (2) The location, date, and result of each sample taken during the last quarter.
- (3) The average of monthly averages for the last 12 months (i.e., the running annual average, RAA).
- (4) Whether, based on Section 64535.2(c), the MCL was violated.