



# Frequently Asked Questions

## **Proposed maximum contaminant level (MCL) for hexavalent chromium**

***Released June 2023***

### **What is hexavalent chromium, and how can it affect a person's health?**

Chromium is an odorless and tasteless heavy metal that occurs throughout the environment and is commonly found in either a trivalent or hexavalent form. The "valent form" of chromium refers to the state of the electrons in a chromium atom in terms of the number of electrons involved in or available for chemical bond formation. Atoms can convert between valence states.

Chronic or long-term exposure to water contaminated with hexavalent chromium may result in liver toxicity, gastrointestinal tumors, and liver cancer.

### **Where does hexavalent chromium come from?**

Much of the hexavalent chromium found in drinking water occurs naturally throughout California from the erosion of chromium deposits. Contamination also can arise from a variety of industrial activities, including the manufacturing of textile dyes, wood preservation, leather tanning, and anticorrosion coatings, where hexavalent chromium contaminated waste has migrated into the groundwater. Hexavalent chromium pollution can occur when an industrial site fails to follow safe waste disposal methods. Counties with the highest number of water sources that currently exceed the proposed maximum contaminant level (MCL) are San Bernardino, Los Angeles, and Fresno counties.

### **How is hexavalent chromium currently regulated in California drinking water?**

In California, hexavalent chromium in drinking water is currently regulated under the total chromium state MCL of 50 parts per billion (ppb). A maximum contaminant level (MCL) is the highest concentration of chemicals permitted in drinking water systems. The total chromium MCL was established in 1977 and regulates both the less-toxic trivalent form and the hexavalent form. California is the only state to have set its own total chromium MCL; other states use the total chromium federal MCL of 100 ppb to regulate chromium. The proposed MCL would regulate hexavalent chromium separately.



### **What happened to the previous MCL for hexavalent chromium that was established in 2014?**

In 2014 the California Department of Public Health (CDPH) established an MCL for hexavalent chromium. The same year, the state's drinking water program moved from CDPH to the State Water Board. In a 2017 ruling on a lawsuit brought by the California Manufacturers and Technology Association and the Solano County Taxpayers Association against the State Water Board, the Sacramento Superior Court invalidated the MCL on the grounds that the state "failed to properly consider the economic feasibility of complying with the MCL." The court did not determine whether the MCL established by the CDPH was economically feasible, nor did it conclude whether the MCL was too high or too low. Rather, the court said the regulation did not adequately document how the MCL was economically feasible.

### **What is the proposed hexavalent chromium MCL and DLR?**

The proposed MCL is 10 ppb. The proposed DLR (detection limit for purposes of reporting) is 0.1 ppb.

### **How did State Water Board staff arrive at the MCL now being proposed?**

The State Water Board is required to set MCLs as close to the public health goal as is technologically and economically feasible, while primarily considering public health. It is not always feasible to treat or even measure down to the very low concentrations that PHGs can be set at. Currently, only a few laboratories have confirmed that they are able to test water down to the PHG (0.02 ug/L), and treatment technology hasn't been studied below levels of about 1 ug/L. This means that an MCL set at the PHG would not be feasible. In addition, the State Water Board considers the economic impacts of an MCL. The economic analysis for the hexavalent chromium MCL included monthly household costs, unit cost analysis, cost-effectiveness, and considered future regulations that may also have a widespread cost impact.

### **Why do small water systems have a later timeline for complying with the proposed MCL?**

Many small public water systems already have numerous challenges, from compliance to routine maintenance, and more than half of California's water systems have fewer than 100 households over which to spread the costs of required improvements to comply with new standards. Larger water systems usually have more resources (money, staff, etc.) with which to comply with the MCL, and may be able to mobilize and implement treatment more quickly than smaller water systems. An additional benefit of larger systems implementing treatment first is that technologies can be refined and savings discovered before smaller systems are required to implement treatment, which could reduce costs to water systems with the smallest ratepayer bases over which to distribute costs and least able to realize any economies of scale. In addition to

considerations of system size, the overall compliance schedule was also designed to allow for lengthier timelines for design and pilot studies, and to allow time for any supply chain delays for treatment equipment.

Therefore, the State Water Board is proposing the following phased approach for complying with the MCL to give water systems more time:

- Systems with more than 10,000 service connections would be required to comply with the MCL within two years.
- Systems with 1,000 to 10,000 service connections would be required to comply with the MCL within three years.
- Systems with less than 1,000 service connections would be required to comply with the MCL within four years.

### **What is the process from this period forward until adoption, and what are the opportunities for public comment?**

The release of the Notice of Proposed Rulemaking starts a 45+ day comment period, which will include a hearing. The public can provide oral comments at the hearing and/or written comments by email, mail, or drop off by the deadline of the 45+ day comment period (details are in the [Notice of Proposed Rulemaking](#)).

After comments are read and considered, additional changes may be made to the regulation. In this case, additional comment periods (usually 15 days long) will be announced (likely written comments only).

When all comments have been read and considered and no further changes are proposed, an adoption hearing will be held, at which the public may further comment on the regulation.

### **When is the proposed MCL for hexavalent chromium likely to take effect?**

The rulemaking started on June 16, 2023, and will be followed by a public hearing to receive oral comments on August 2, 2023, with written comments due August 4, 2023. All comments received will be considered by State Water Board staff prior to presenting to the Board for adoption. The timing of Board consideration depends on the number and nature of comments received, but regular rulemakings are required to be completed and submitted to the Office of Administrative Law no later than one year after publication of the Notice.

### **What are the anticipated health risks of the proposed MCL?**

At an MCL of 10 ppb, the health risk is estimated to be a one-in-two-thousand chance of developing cancer during a lifetime (70 years) of exposure.

### **Is there a point at which MCLs are re-evaluated?**

Yes. Each chemical with an MCL above the corresponding PHG is reviewed every five years in a comprehensive MCL review, which is required under Health and Safety Code section 116365(g). The MCL review helps determine which chemicals need MCL or DLR revisions. Once it is determined that greater protection of public health is technologically and economically feasible for a specific chemical, the chemical is added to the regulation priority list for an MCL revision.

### **How can a person go about testing their water for hexavalent chromium?**

Persons wishing to test their household water for hexavalent chromium may find information about testing laboratories accredited by the State Water Board's Environmental Laboratory Accreditation Program (ELAP) [here](#).

### **How can a person decrease exposure to any hexavalent chromium in their household water?**

Residential point-of-use (POU) and point-of-entry (POE) devices can be purchased by individuals to reduce exposure to contaminants in their household water. POU devices (often pitcher filters) are much more common than POE devices for hexavalent chromium treatment. A list of certified residential POU and POE devices capable of treating hexavalent chromium is available on the [State Water Board's website](#). Check with the manufacturer and the POU device's hexavalent chromium reduction claims as percent removal may vary by device.

### **What is the State Water Board doing to help smaller, disadvantaged communities comply with the new MCL?**

The State Water Board has several programs that help smaller, disadvantaged communities achieve compliance with MCLs. These programs include the [Drinking Water State Revolving Fund \(DWSRF\)](#), principal forgiveness programs, state grants, and [SAFER](#), which is designed to ensure Californians who lack safe, adequate, and affordable drinking water receive it as quickly as possible, and that the water systems serving them establish sustainable solutions.

### **What treatment technologies have been identified as best available technology (BAT), and what does this mean?**

Three treatment technologies have been identified as best available technology (BAT): ion exchange, reduction-coagulation-filtration (RCF), and reverse osmosis. A technology being identified as BAT means that it is a technology that is generally expected to be able to reliably remove the chemical (in this case, hexavalent chromium) from the water to levels below the MCL. Public water systems are not limited to using only those technologies identified as BAT.

### **When and how often will water systems be required to test for hexavalent chromium?**

Water systems are required to test for hexavalent chromium within six months of this regulation becoming effective. How often systems are required to test for hexavalent chromium depends on whether the water source is surface water or groundwater and whether the source exceeds the MCL. Water that is being treated to comply with the MCL must be tested monthly.

### **How can I find out how much hexavalent chromium is in my water?**

Hexavalent chromium detections would be required to be reported to consumers in annual Consumer Confidence Reports (CCRs). Water system CCRs and any hexavalent chromium testing information may also be available on [California's Drinking Water Watch](#).

### **What environmental review is the State Water Board conducting in connection with the proposed rulemaking?**

When adopting a rule or regulation requiring installation of pollution control equipment, establishing a performance standard, or establishing a treatment requirement, the State Water Board must perform an environmental analysis of the reasonably foreseeable methods by which compliance with that regulation will be achieved (Pub. Resources Code, § 21159; Cal. Code Regs., tit. 14, § 15187.). To meet this requirement, the State Water Board has prepared a Draft Environmental Impact Report (Draft EIR) pursuant to the California Environmental Quality Act. Environmental impacts may occur from infrastructure projects that public water systems undertake locally to comply with an MCL for hexavalent chromium, such as the installation of centralized treatment or obtaining new sources of supply. Because the location and technical nature of these local compliance projects are not yet known, the Draft EIR takes a conservative approach to evaluating environmental impacts and finds potentially significant impacts related to a number of environmental resources, and identifies possible mitigation measures for those agencies to consider to reduce environmental impacts to less than significant. It is likely that many of the local projects implemented to comply with the MCL will not have significant environmental impacts; however, if there are potentially significant impacts, the agencies undertaking or approving the site-specific projects are able to prepare a focused analysis of the project-specific, potentially significant effects that were not discussed in the State Water Board's EIR on the regulation. (See Cal. Code Regs., tit., § 15188.) The Draft EIR and appendices, as well as the Notice of Availability of a Draft EIR, are available for public review on the State Water Board's website. Public comment on the Draft EIR is open through 12:00pm (noon) on August 4, 2023.



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### Additional Resources

Public Health Goal: <https://oehha.ca.gov/water/chemicals/chromium-hexavalent>

Rulemaking Status:

[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/SWRCBDDW-21-003\\_hexavalent\\_chromium.html](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/SWRCBDDW-21-003_hexavalent_chromium.html)

Regulatory Background:

[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/Chromium6.html](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.html)

Sampling Results:

[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/Chromium6sampling.html](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6sampling.html)