

PUBLIC NOTICE

Announcement of initiation to Develop and Update Public Health Goals for Chemicals in Drinking Water: Perfluorohexane Sulfonic Acid (PFHxS) and Arsenic.

Office of Environmental Health Hazard Assessment California Environmental Protection Agency

October 03, 2025

Public Health Goals (PHGs) are concentrations of contaminants in drinking water that pose no significant risk to health. The Office of Environmental Health Hazard Assessment (OEHHA) establishes PHGs, which are used as the health basis for the development of California's primary drinking water standards (Maximum Contaminant Levels or MCLs). OEHHA also reviews and updates existing PHGs. This public notice announces the initiation of PHG development for perfluorohexane sulfonic acid (PFHxS) and an update of the PHG for arsenic.

The development of a PHG for PFHxS and update of the PHG for arsenic are both being initiated at the request of the State Water Resources Control Board (SWRCB). PFHxS currently has a notification level¹ (NL) of 3 parts per trillion (ppt) based on thyroid toxicity. A PHG of 4 ppt for arsenic was established in 2004 based on cancer risk. The PHG development/update will incorporate relevant new data and information. OEHHA is requesting data and information on these contaminants that could assist in conducting the risk assessments and in calculating the PHGs.

All information submitted to OEHHA in response to this request is considered public. Please do not submit proprietary information. In order to be considered during the PHG development or update process, **OEHHA must receive information by November 03, 2025. Electronic submission of information via OEHHA's website (<https://oehha.ca.gov/comments>) is encouraged.** Information submitted in paper form may be mailed or delivered in person to the address below:

Pesticide and Environmental Toxicology Branch
Office of Environmental Health Hazard Assessment
P. O. Box 4010, MS-12B
Sacramento, California 95812-4010

Attention: PHG Program

¹ A notification level is a non-regulatory, health-based advisory level that SWRCB establishes as a precautionary measure for a contaminant for which a regulatory standard has not been set. Certain requirements are triggered when a chemical is detected at levels that exceed its respective notification level. For more information, go to:
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.html.

If you have any questions, please contact Hermelinda Jimenez at (916) 324-7572 or email PHG.Program@oehha.ca.gov.

All relevant information will be considered in developing/updating the PHGs for these chemicals. SWRCB will use the final risk assessments in the development/review of California regulatory MCLs for these chemicals. For more information on this process, go to the [SWRCB website](#).

Background

The Calderon-Sher California Safe Drinking Water Act of 1996 (Health and Safety Code section 116365), hereafter referred to as the Act, requires OEHHA to post a notice on its website when it initiates work to develop or update PHGs. PHGs are concentrations of chemicals in drinking water that are not anticipated to produce adverse health effects. OEHHA is required to consider potential adverse effects on members of sensitive subgroups of the population, including infants, children, pregnant women, the elderly, and individuals with a history of serious illness.

PHGs are non-regulatory in nature but are used as the health basis for SWRCB to establish or update the state's primary drinking water standards or MCLs. Since 1996, OEHHA has developed PHGs for approximately 100 chemicals.

At the initial posting of a draft PHG document, OEHHA provides a 45-day public comment period. OEHHA also conducts a public workshop to receive public comments and engage in dialogue with interested parties on the draft document. An external scientific peer review is then conducted as required by Health and Safety Code section 57004(b). OEHHA considers all relevant comments in the preparation of the second draft, which is posted for a 30-day public comment period. After consideration of any additional comments, the PHG is finalized and posted, along with a document containing responses to public and peer review comments, on the OEHHA website for public reference and for use by SWRCB in developing or reviewing California MCLs.

All PHGs and their supporting documents are available on [OEHHA's website](#).

PERFLUOROHEXANE SULFONIC ACID (PFHxS)

PFHxS (Chemical Abstracts Service (CAS) Registry Number 355-46-4) is a member of the larger class of chemicals known as PFAS (per- and polyfluoroalkyl substances). PFHxS is used in firefighting foam and textiles, due to its water repellent properties.

In 2022, OEHHA developed an NL recommendation of 2 ppt (OEHHA, 2022), based on thyroid toxicity in male rats (NTP, 2019). SWRCB set the NL at 3 ppt, due to the minimum reporting level of the analytical method used to detect PFHxS in water (US EPA method 533). In 2024, US EPA set a federal MCL of 10 ppt for PFHxS, but it was announced in 2025, that the MCL will be rescinded². In 2025, US EPA's Integrated Risk

² <https://www.epa.gov/newsreleases/epa-announces-it-will-keep-maximum-contaminant-levels-pfoa-pfos>

Information System (IRIS) derived a reference dose (RfD) of 0.0004 nanograms per kilogram of body weight per day (ng/kg-day) (US EPA, 2025), based on decreased serum tetanus antibody concentrations in children (Grandjean et al., 2012).

In the last three years, PFHxS has been detected in public water supply wells in California, with concentrations ranging from 1.1 to 14,000 ppt. Approximately 27% of the wells sampled had concentrations above the NL of 3 ppt, and approximately 4% of wells had concentrations above the federal MCL of 10 ppt³. OEHHA will evaluate all relevant information including the toxicological literature since the publication of the NL recommendation, and will do a thorough evaluation of the epidemiological toxicity data.

Selected References

Chang S, Butenhoff JL, Parker GA, et al. (2018). Reproductive and developmental toxicity of potassium perfluorohexanesulfonate in CD-1 mice. *Reprod Toxicol* 78: 150-168.

Grandjean P, Andersen EW, Budtz-Jørgensen E, et al. (2012). Serum vaccine antibody concentrations in children exposed to perfluorinated compounds. *Jama* 307(4): 391-397.

NTP (2019). NTP Technical Report on the Toxicity Studies of Perfluoroalkyl Sulfonates (Perfluorobutane Sulfonic Acid, Perfluorohexane Sulfonate Potassium Salt, and Perfluorooctane Sulfonic acid) Administered by Gavage to Sprague Dawley (Hsd: Sprague Dawley SD) Rats. TOX-96. National Toxicology Program, <https://cebs.niehs.nih.gov/cebs/publication/TOX-96>.

OEHHA (2022). Notification Level Recommendation for Perfluorohexane Sulfonic Acid (PFHxS) in Drinking Water. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. <https://oehha.ca.gov/sites/default/files/media/pfhxsnl031722.pdf>

US EPA (2025). IRIS Toxicological Review of Perfluorohexanesulfonic Acid (PFHxS, CASRN 335-46-6) and Related Salts. Integrated Risk Information System, United States Environmental Protection Agency. https://cfpub.epa.gov/ncea/iris_drafts/recorddisplay.cfm?deid=355410

ARSENIC

Arsenic is a naturally occurring element that is widespread in the environment, and ubiquitous in some areas in California. Anthropogenic activity, such as industrial and agricultural processes, can introduce arsenic into the environment. Arsenic can also be

³ Data accessed with GAMA Groundwater Information System on June 30, 2025: <https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/>. The data for public water supply wells accessed with GeoTracker GAMA do not indicate whether the source is raw (untreated) water or treated water; therefore, the results in the dataset may not be representative of the water delivered to customers.

found in commercial products, such as paints and semiconductors. Human exposure to arsenic can occur through food, drinking water, soil contact, and air.

OEHHA published a PHG of 4 ppt for arsenic in 2004, based on lung and bladder cancer in humans (OEHHA, 2004). A noncancer health-protective concentration (HPC) of 0.9 parts per billion (ppb) was also determined, based on cerebrovascular effects in humans (Chiou et al., 1997). Arsenic is listed on California's Proposition 65 list as a carcinogen and reproductive toxicant. The International Agency for Research on Cancer classified arsenic and inorganic arsenic compounds as Group 1, "carcinogenic to humans" (IARC, 1980, 2012). US EPA also classified arsenic as "carcinogenic to humans" (US EPA, 2025). In 2025, US EPA derived an RfD of 0.06 µg/kg-day based on increased incidences of diabetes and ischemic heart disease in humans. US EPA (2025) also determined a cancer potency of 0.0317 (µg/kg-day)⁻¹ based on combined bladder and lung cancer risk in humans.

The current MCL in California for arsenic is 10 ppb, established in 2008. In the last three years, arsenic has been detected in California drinking water supply wells in California, with concentrations ranging from 0.1 to 1,560 ppb. Approximately 11% of the wells sampled had concentrations greater than the state MCL of 10 ppb. The update of the risk assessment will consider all relevant information including the toxicology and epidemiology literature since the publication of the PHG in 2004 and will incorporate the application of updated risk assessment methodologies.

Selected References

Chiou HY, Huang YI, Su CL, Chang SF et al. (1997b). Dose-response relationship between prevalence of cerebrovascular disease and ingested inorganic arsenic. *Stroke* 28:1717-1723.

Hopenhayn-Rich C, Biggs ML, Fuchs A, Bergoglio R et al. (1996c). Bladder cancer mortality associated with arsenic in drinking water in Argentina. *Epidemiology* 7:117-124.

Hopenhayn-Rich C, Biggs ML, Smith AH (1998). Lung and kidney cancer mortality associated with arsenic in drinking water in Cordoba, Argentina. *Int J Epidemiol* 27:561-569.

IARC (1980). IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man: Some Metals and Metallic Compounds, Volume 23. International Agency for Research on Cancer. Lyon, France.

<https://publications.iarc.who.int/Book-And-Report-Series/Iarc-Monographs-On-The-Identification-Of-Carcinogenic-Hazards-To-Humans/Some-Metals-And-Metallic-Compounds-1980>

IARC (2012). Arsenic, Metals, Fibres, and Dusts. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 100C.

<https://publications.iarc.fr/publications/media/download/6143/ef2dcba35d394362f6f5346d042bd48e5792ded3.pdf>

OEHHA (2004). Public Health Goal for Arsenic in Drinking Water. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. <https://oehha.ca.gov/sites/default/files/media/downloads/water/chemicals/phg/asfinal.pdf>

Smith AH, Goycolea M, Haque R et al. (1998). Marked increase in bladder and lung cancer mortality in a region of northern Chile due to arsenic in drinking water. *Am J Epidemiol* 147:660-9.

US EPA (2025). IRIS Toxicological Review of Inorganic Arsenic. Integrated Risk Information System, United States Environmental Protection Agency. <https://iris.epa.gov/static/pdfs/0278tr.pdf>

Waalkes MP, Ward JM, Liu J, Diwan BA (2003). Transplacental carcinogenicity of inorganic arsenic in the drinking water: induction of hepatic, ovarian, pulmonary, and adrenal tumors in mice. *Toxicol Appl Pharmacol* 186:7-17.