



NOTIFICATION LEVEL ISSUANCE

Contaminant(s):	perfluorooctanesulfonic acid (PFOS)
Notification Level:	0.000013 milligrams per liter
Response Level:	0.000070 milligrams per liter (Combined Total, PFOS +PFOA*)
Analytical Method:	EPA Method 537 Rev. 1.1**
Toxicological Endpoint:	Immune suppression, specifically, a decrease in antibody response to an exogenous antigen challenge
<p>* perfluorooctanoic acid (PFOA) ** Recommended method for unregulated contaminant (https://www.epa.gov/dwanalyticalmethods/analytical-methods-developed-epa-analysis-unregulated-contaminants)</p>	

FINDINGS:

1. Health and Safety Code section 116455 provides the State Water Resources Control Board’s Division of Drinking Water (DDW) the ability to issue notification levels (NLs) for contaminants in drinking water delivered for human consumption before a maximum contaminant level has been set.
2. Notification levels are nonregulatory, health-based advisory levels for contaminants that are established as precautionary measures for contaminants.
3. Since the early 1980s, notification levels (known as "action levels" through 2004) for 93 contaminants have been established. Of those, 40 have gone through the formal regulatory process and now have MCLs. Currently there are 29 chemicals with notification levels. In addition, another 24 chemicals have archived advisory levels. For more information: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.html
4. Health and Safety Code section 116271 delegates to the Deputy Director of the DDW the authority “to take action pursuant to Article 5,” which includes the power to issue a notification level pursuant to Health and Safety Code section 116455.
5. The establishment of a notification level does not require public water systems to monitor for the contaminant, except when water systems are subject to the recycled water regulations. Some water systems, however, will sample for constituents in addition to those contaminants for which there are MCLs, and if those monitoring results indicate that a notification level has been exceeded, the water system must comply with the statute’s



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notification requirements. In addition, to those requirements, the DDW recommends that a public water system inform its customers and consumers about the presence of the constituent and any health concerns associated with exposure.

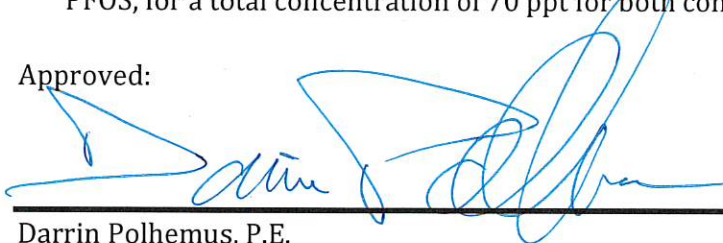
6. Perfluorooctanoic sulfonate (PFOS) is a fluorinated organic chemical that is part of a larger group of chemicals referred to as perfluoroalkyl substances (PFASs). These manmade compounds have been used extensively in consumer products such as carpets, clothing, fabrics for furniture, paper packaging for food, and other materials (*e.g.*, cookware) designed to be waterproof, stain-resistant, or non-stick. In addition, they have been used in fire-retarding foam and in various industrial processes.
7. The contamination of drinking water with PFASs has become an increasing concern due to the tendency of PFASs to accumulate in groundwater. Of all the PFAS compounds, PFOS and PFOA have been the most extensively produced and studied in the United States.
8. In May of 2016, the United States Environmental Protection Agency (U.S. EPA) issued a lifetime health advisory for PFOS and PFOA for drinking water in public water systems, advising municipalities that they should notify their customers of the presence of levels over 70 parts per trillion (ppt) in community water supplies. U. S. EPA recommended that the notification of customers include information on the increased health risk to health especially for susceptible populations.
9. Based on the current available peer-reviewed studies on laboratory animals and epidemiological evidence in human populations, U.S. EPA indicates that exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (*e.g.*, low birth weight, accelerated puberty, skeletal variations), cancer (*e.g.*, testicular, kidney), liver effects (*e.g.*, tissue damage), immune effects (*e.g.*, antibody production and immunity), thyroid effects and other effects (*e.g.*, cholesterol changes).
10. In response to a request from DDW, the Office of Environmental Health Hazard Assessment (OEHHA) recommended interim NLs of 14 ppt for PFOA (based on liver toxicity, as well as cancer risks) and 13 ppt for PFOS (based on immunotoxicity) in drinking water. OEHHA made these recommendations following the review of currently available health-based advisories and standards and supporting documentation (memorandum from L. Zeise, OEHHA, to D. Polhemus, DDW, dated June 26, 2018). After independent review of the available information on the risks, DDW has established NLs for PFOA and PFOS consistent with OEHHA's recommendations. In the future, OEHHA will complete its final recommendations for NLs for the two compounds, and DDW will consider whether revisions to the NLs are appropriate.
11. In addition to NLs, DDW has established one response level for PFOS and PFOA. Health and Safety Code section 116455 defines the response level as the concentration of a contaminant in drinking water delivered for human consumption at which DDW



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recommends that additional steps be taken beyond notification, to reduce exposure to the contaminant, and are set in conjunction with NLs. Additional steps may include treatment of the drinking water supply, or removal of the source from service. DDW established one response level for PFOA and PFOS, which is 5 times the notification level of either PFOA or PFOS, for a total concentration of 70 ppt for both contaminants.

Approved:

 July 13, 2018

Darrin Polhemus, P.E.
Deputy Director, Division of Drinking Water
State Water Resources Control Board

Date