MCL Review in Response to PHGs

March 1, 2016

Health and Safety Code §116365(g) requires the Water Board, at least once every five years, to review its MCLs. In the review, the State Water Board's MCLs are to be consistent with criteria of §116365(a) and (b). Those criteria state that the MCLs cannot be less stringent than federal MCLs, and must be as close as is technically and economically feasible to the public health goals (PHGs) established by the Office of Environmental Health Hazard Assessment (OEHHA). Consistent with those criteria, the State Water Board is to amend any standard if any of the following occur: (1) Changes in technology or treatment techniques that permit a materially greater protection of public health or attainment of the PHG, or (2) New scientific evidence indicates that the substance may present a materially different risk to public health than was previously determined. Each year by March 1, the State Water Board is to identify each MCL it intends to review that year.

For a list of all regulated chemicals' MCLs and PHGs, click here (Excel).

The Process of Review

The first step in the review process is an initial screening. The criteria for this screening include: (1) The relationship between the PHG and both federal and state MCLs (PDF); (2) any changes in technology or treatment techniques that permit a materially greater protection of public health or attainment of the public health goal; and (3) any new scientific evidence indicating that the substance might present a materially different risk to public health than was previously determined.

To assess chemical occurrence in drinking water sources, that is, in drinking water wells or surface water supplies, we obtained four years of recent analytical data from the State Water Board's Division of Drinking Water's (DDW's) Water Quality Monitoring (WQM) database and analyzed each chemical being considered for review.

For each regulated contaminant, we have also established in regulation a standardized quantification level called the "detection level for purposes of reporting" (DLR). The DLR represents the level at which we are confident about the accuracy of the quantity of contaminant being reported by laboratories. Although any findings below DLRs are considered "non-detects" and are not technically required to be reported, some laboratories may on occasion report lower levels for chemicals. For some chemicals, the DLR affects the technical feasibility of revising the MCL, in that the limits on a chemical's detectability by analytical laboratories also serve to limit the extent to which the MCL might be lowered.

Since this process began in 1999, MCLs for these chemicals have been revised downward, that is, made more stringent: cyanide, ethylbenzene, 1,2,4-trichlorobenzene, atrazine, oxamyl, and methoxychlor. (No MCLs have been made less stringent.) In addition, the 2014 MCL for hexavalent chromium resulted from a review of the MCL for total chromium.

MCL Review and Status

The steps in selecting contaminants for possible MCL review are as follows:

1. **Regulated contaminants with PHGs** – The selection process for MCLs for possible review first considers the regulated chemicals with PHGs. From the list of regulated contaminants, those with PHGs established through 2015 were identified. (see OEHHA's list of contaminants with PHGs)

   In 2015, OEHHA revised the PHG for perchlorate.

   At the request of the California Department of Public Health's (CDPH's) Drinking Water Program (now DDW), OEHHA has established PHGs for two unregulated chemicals, N-nitrosodimethylamine (NDMA) and 1,2,3-trichloropropane (1,2,3-TCP). We have not yet proposed MCLs, though each chemical has an advisory notification level. An MCL is for 1,2,3-TCP is currently under development. Neither NDMA nor 1,2,3-TCP is considered further in this review.

There are 87 contaminants with MCLs that have PHGs (Table 1) (Excel).

2. **Contaminants with MCLs greater than PHGs** – The selection process then identified contaminants with MCLs greater than PHGs.

   There are 36 chemicals with MCLs equal to or below their PHGs that were not considered for further review, since their MCLs provide the same or greater protection to the drinking water consumer as their PHGs. For this step in the process, chemicals with an MCL up to 1.3 times the PHG were considered to have an MCL equivalent to the PHG, i.e., to pose no significant increase to health risk. Those six contaminants are 1,2-dichloroethane, dichloromethane, diquat, endothall, endrin, and heptachlor.

   In addition, 6 other chemicals were excluded at this stage, and not considered further:

- **Chemicals Regulated by the Lead and Copper Rule:**
  Lead - Action Level = 15 ppb; DLR = 5 ppb; PHG = 0.2 ppb. The PHG is based on neurobehavioral effects in children, and hypertensive effects in adults. Copper - Action Level = 1,300 ppb; DLR =50 ppb; PHG = 300 ppb. The PHG is based on gastrointestinal effects in infants, COMMENTS: Lead and copper do not have MCLs. Instead, they are covered by "action levels" and a different regulatory approach that involves statistical analyses of analytical samples of drinking water taken from customers taps (see 22 CCR §64678). If more than 10 percent of samples exceed the action level, corrosion control treatment must occur. Lead's action level is 3 times its DLR. Copper's action level is 4.3 times the PHG. Click here for more about the Lead and Copper Rule.

- **Chemicals Used in Drinking Water Treatment to Provide a Public Health Benefit:**
  Aluminum - MCL = 1,000 ppb; DLR = 50 ppb; PHG = 600 ppb. The PHG is based on elevated aluminum blood levels in adults, and on avoidance impaired neurological development in premature infants.
  Fluoride - MCL = 2,000 ppb; DLR is 100 ppb; PHG =1,000 ppb. The PHG is based on dental fluorosis in children.
  COMMENTS: Aluminum and fluoride may be added during drinking water treatment, so they are not necessarily always "contaminants." Aluminum compounds may be added in the treatment process to help precipitate out other chemicals. Aluminum's MCL is 1.7 times the PHG. Aluminum also has a secondary MCL of 200 ppb that is more restrictive than its PHG. There is no federal primary MCL for aluminum, though there is a federal secondary MCL of 50 to 200 ppb. Fluoride may be added to provide a public health benefit by preventing tooth decay. Fluoride's MCL is 2 times the PHG. The federal MCL is 4,000 ppb, to protect against skeletal fluorosis; there is a federal secondary MCL of 2,000 ppb, established to address dental fluorosis.

- **Chemicals That Are Byproducts of Disinfection Treatment:**
  Bromate - MCL = 10 ppb; DLR = 1 or 5 ppb (laboratory analytical method dependent); PHG = 0.1 ppb. The PHG is based on cancer risk, derived from studies in laboratory animals. It is set at a *de minimis* (10-6) theoretical lifetime cancer risk (see Notes, below, for more information about PHG endpoints).
  Chlorite - MCL = 1,000 ppb; DLR = 20 ppb; PHG = 50 ppb. The PHG is based on non-cancer effects (hematological changes) derived from studies on experimental animals. The PHG includes an uncertainty factor (UF) of 300 (see Notes, below).
  COMMENTS: Bromate and chlorite are byproducts of drinking water disinfection, which is required for the removal of disease-causing microbiological organisms for public health protection. Bromate's MCL is 2-10 times the method-dependent DLR. Chlorite's MCL is 20 times its PHG. The theoretical health risk that results from disinfection byproducts is offset by the important public health benefit provided by drinking water disinfection. Water systems take steps to reduce the production of DPBs by limiting the presence of precursor chemicals in their water supplies that may interact with disinfection chemicals.

When chemicals with MCLs equivalent to or below their PHGs and the additional chemicals identified above are excluded from the regulated contaminants in Step 1, there remain 45 contaminants with MCLs greater than their PHGs (Table 2) (Excel).

3. **Recent detections of contaminants with MCLs greater than PHGs** – The selection process excludes contaminants with no recent detections at or above the DLR in at least one drinking water source. Two detections in a source at or above the DLR is a "detection" for purposes of this step.

   There are 23 contaminants with recent (2012-2015) detections (Table 3) (Excel). The most commonly detected contaminants with MCLs greater than PHGs include arsenic, hexavalent chromium, perchlorate, uranium, tetrachloroethylene (or perchloroethylene, PCE), trichloroethylene (TCE), and 1,2-dibromo-3-chloropropane (DBCP).
4. **Contaminants for further review** – The 23 contaminants with MCLs greater than their PHGs and with recent detections were evaluated to determine chemicals for further review of the MCL. They were considered in terms of the number of sources (active and standby) with reported detections above the PHG or the MCL, and in terms of the criteria presented earlier. Based on these considerations, we determined whether or not a more extensive review and evaluation of the chemical detections and their associated drinking water sources - including a cost-benefit analysis of possible MCL reductions - would be appropriate. The 23 contaminants are discussed individually below.

Notes pertinent to individual chemicals:

a. With regard to the basis for the PHG mentioned below, PHGs for cancer-causing substances are set at a theoretical level of 1 X 10-6, or up to one excess case of cancer per million people per 70-year lifetime exposure. This is also called "*de minimis*" cancer risk. Public health and environmental regulatory agencies generally consider risks within the 10-6 to 10-4 cancer risk range to be "acceptable," though on occasion a higher theoretical cancer risk may be acceptable, when setting a health-based standard. Values 10 or 100 times the PHG correspond to risk levels of 10-5 or 10-4, respectively.
b. For chemicals considered to be non-carcinogens, PHGs are set at a level equivalent to the no observed adverse effect level (NOAEL) divided by an uncertainty factor (UF) that reflects limitations in available scientific information related to the evaluation of effects. For some contaminants, the UF may include an extra factor to account for a possibility of cancer -- this would occur, for example, if the chemical is known to be carcinogenic when inhaled, but hasn't been found to be carcinogenic when ingested.
c. California and federal MCLs are frequently set at the same level. Where California and federal MCLs differ, this is noted in the chemical-specific information.
d. Detections refer to the number of drinking water sources with a peak detection above the PHG and above the MCL, based on sampling from 2012 through 2015, unless otherwise noted. As mentioned above, at least two findings at or above the DLR from a drinking water source are needed to be considered a detection for this evaluation.

Inorganic Chemicals (9)

- Arsenic - MCL = 10 ppb; DLR = 2 ppb; PHG = 0.004 ppb.
  Basis for PHG: Cancer risk, based upon epidemiological studies in people, along with studies in experimental animals.
  Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 5 X 10-4. Cancer risk at MCL: 2.5 X 10-3.
  Detections: Arsenic is among the most frequently detected contaminants, reflecting its natural occurrence. The Final Statement of Reasons for the arsenic MCL (2008) identified 2,642 sources with detections above 2 ppb and 593 above 10 ppb.
  COMMENTS: We are not aware of changes in treatment that would permit materially greater protection of public health, nor of new scientific evidence of a materially different public health risk than was previously determined. Thus, we do not plan on further review of the arsenic MCL.

- Beryllium - MCL = 4 ppb; DLR = 1 ppb; PHG = 1 ppb.
  Basis for PHG: Non-cancer effects, based upon gastrointestinal lesions in dogs fed beryllium in their diets. The PHG includes a 1,000-fold UF (including a 10-fold factor reflecting the possible carcinogenic potential from ingested beryllium).
  Detections (2012-2015): 1 source with a peak detection above the PHG and above the MCL.
  COMMENTS: There was only a single source with a detection of beryllium and the MCL is just 4 times the PHG. Thus, we do not plan on further review of the beryllium MCL.

- Cadmium - MCL = 5 ppb; DLR = 1 ppb; PHG = 0.04 ppb.
  Basis for PHG: Non-cancer effects, based upon tubular damage in human kidneys indicated by the presence of small proteins and other substances. The PHG includes a 50-fold UF (including a 10-fold factor reflecting the possible carcinogenic potential from ingested cadmium).
  Detections (2012-2015): 20 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 6 above the MCL.
  COMMENTS: There have been relatively few detections of cadmium and the MCL is 5 times the DLR. Thus, we do not plan on further review of the cadmium MCL.

- Chromium, Hexavalent - MCL = 10 ppb (there is no federal MCL specific for hexavalent chromium); DLR = 1 ppb; PHG = 0.02 ppb.
  Basis for PHG: Cancer risk, based upon studies in experimental animals.
  Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 5 X 10-5. Cancer risk at MCL: 5 X 10-4.
  Detections: Hexavalent chromium is also among the most frequently detected contaminants, and may be naturally occurring. The Initial Statement of Reasons for the hexavalent chromium MCL (2014) included increased monitoring and treatment requirements for an estimated 2487 sources above 1 ppb and 311 above 10 ppb.
  COMMENTS: The MCL for hexavalent chromium was adopted in 2014. Although there is no federal MCL, there is a 100-ppb MCL for total chromium. The California MCL for total chromium is 50 ppb. We are not aware of changes in treatment that would permit materially greater protection of public health, nor of new scientific evidence of a materially different public health risk than was previously determined. Thus, we do not plan on further review of the hexavalent chromium MCL.

- Mercury - MCL = 2 ppb; DLR = 1 ppb; PHG = 1.2 ppb.
  Basis for PHG: Non-cancer effects, based on kidney toxicity in short term studies in rats. PHG includes a 1,000-fold UF.
  Detections (2012-2015): 7 sources with a peak detection above the PHG and 3 above the MCL.
  COMMENTS: There have been few detections of mercury and the MCL is just 1.7 times the PHG. Thus, we do not plan on further review of the mercury MCL.

- Nickel - MCL = 100 ppb (no federal MCL); DLR = 10 ppb; PHG = 12 ppb.
  Basis for the PHG: Non-cancer effects, based upon reproduction toxicity studies in rats. PHG includes a 1,000-fold UF (including a 10-fold factor reflecting the possible carcinogenic potential from ingested nickel).
  Detections (2012-2015): 51 sources with a peak detection above the PHG and 8 above the MCL.
  COMMENTS: There have been relatively few detections and the MCL is 8 times the PHG. Thus, we do not plan on further review of the nickel MCL.

- Perchlorate - MCL = 6 ppb (no federal MCL); DLR = 4 ppb; PHG = 1 ppb.
  Basis for PHG: Non-cancer effects, based upon studies in people; perchlorate interferes with iodide uptake by the thyroid gland, which can affect thyroid hormone production. The PHG, which includes a 10-fold UF, takes into account water consumption by the infant.
  Detections (2012-2015): 249 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 159 above the MCL.
  COMMENTS: The PHG was revised to 1 ppb in 2015 from its prior 6-ppb value, established in 2004. We are not aware of changes in treatment techniques for perchlorate that permit materially greater protection of public health nor of new scientific evidence of a materially different public health risk than was previously determined. However, given the number of detections and the recent reduction in the PHG to take into account infant exposures, we believe it appropriate to examine the perchlorate detections and the drinking water sources involved, and to develop a cost benefit analysis of a possible MCL revision. This will enable us to determine whether the perchlorate MCL (adopted in 2007) should be revised downward or maintained at the same level. More information about perchlorate is here.

- Selenium - MCL = 50 ppb; DLR = 5 ppb; PHG = 30 ppb.
  Basis for the PHG: Non-cancer effects, based upon hair loss and nail damage in people. PHG includes a 3-fold UF.
  Detections (2012-2015): 26 sources with a peak detection above the PHG and 9 above the MCL.
  COMMENTS: Selenium is an essential nutrient. There have been few detections and the MCL is just 1.7 times the PHG. Thus, we do not plan on further review of the selenium MCL.

- Thallium - MCL = 2 ppb; DLR = 1 ppb; PHG = 0.1 ppb.
  Basis for the PHG: Non-cancer effects, based upon hair loss in rats. PHG includes a 3,000-fold UF.
  Detections (2012-2015): 1 source with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 1 above the MCL.
  COMMENTS: There was just a single source with a detection and the MCL is just 2 times the DLR. Thus, we do not plan on further review of the thallium MCL.

  Radionuclides (3)

- Radium 226 - MCL = 5 picocuries per liter (pCi/L) for sum of Ra-226 + Ra-228; DLR = 1 pCi/L; PHG = 0.05 pCi/L.
  Basis for PHG: Cancer risk, based upon human epidemiological data for exposures to ionizing radiation.
  Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 2 X 10-5. Cancer risk at MCL, if all from Ra-226: 1 X 10-4.
  Detections (2012-2015): 25 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 5 above 5 pCi/L. These raw values do not take into account statistical evaluations required to determine compliance with the MCL.
  COMMENTS: We are not aware of changes in treatment that would permit materially greater protection of public health, nor of new scientific evidence of a materially different public health risk than was previously determined. Thus, we do not plan on further review of the radium-226 + radium-228 MCL.

- Radium 228 - MCL = 5 pCi/L for sum of Ra-226 + Ra-228; DLR = 1 pCi/L; PHG = 0.019 pCi/L.
  Basis for PHG: Cancer risk, based upon human epidemiological data for exposures to ionizing radiation.
  Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 5 X 10-5. Cancer risk at MCL, if all from Ra-228: 2.6 X 10-4.
  Detections (2012-2015): 62 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 2 above 5 pCi/L. These raw values do not take into account statistical evaluations required to determine compliance with the MCL.
  COMMENTS: We are not aware of changes in treatment that would permit materially greater protection of public health, nor of new scientific evidence of a materially different public health risk than was previously determined. Thus, we do not plan on further review of the radium-226 + radium-228 MCL.

- Uranium - MCL = 20 pCi/L (federal MCL is 30 ppb); DLR = 1 pCi/L; PHG = 0.43 pCi/L.
  Basis for PHG: Cancer risk, based upon human epidemiological data for exposures to ionizing radiation. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 2.3 X 10-6. Cancer risk at MCL: 4.7 X 10-5.
  Detections (2012-2015): Uranium is a frequently detected contaminant. 1,039 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 222 above the MCL. These raw values do not take into account statistical evaluations required to determine compliance with the MCL.
  COMMENTS: We are not aware of changes in treatment that would permit materially greater protection of public health, nor of new scientific evidence of a materially different public health risk than was previously determined. Thus, we do not plan on further review of the uranium MCL.

  Volatile Organic Chemicals (9)

- Benzene - MCL = 1 ppb (federal MCL = 5 ppb); DLR = 0.5 ppb; PHG = 0.15 ppb.
  Basis for PHG: Cancer risk, based upon human data from workplace exposures. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 3.3 X 10-6. Cancer risk at the 1-ppb MCL: 6.7 X 10-6.
  Detections (2012-2015): 7 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 3 above the MCL (2 above the federal MCL).
  COMMENTS: There have been few detections and the MCL is just 2 times the DLR. Thus, we do not plan on further review of the benzene MCL.

- Carbon tetrachloride - MCL = 0.5 ppb (federal MCL = 5 ppb); DLR = 0.5 ppb; PHG = 0.1 ppb.
  Basis for PHG: Cancer risk, based upon experimental studies in mice. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 5 X 10-6. Cancer risk at MCL: 5 x 10-6.
  Detections (2012-2015): 55 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and the MCL (7 above the federal MCL).
  COMMENTS: The MCL is the same as the DLR, and the MCL is just 5 times the PHG. Thus, we do not plan on further review of the carbon tetrachloride MCL.

- 1,1-Dichloroethane - MCL = 5 ppb (no federal MCL); DLR = 0.5 ppb: PHG = 3 ppb.
  Basis for PHG: Cancer risk, based upon experimental studies in rates. Cancer risk at PHG: 1X10-6. Cancer risk at MCL: 1.7 X 10-6 ppb.
  Detections (2012-2015): 2 sources with a peak detection above the PHG and 0 above the MCL.
  COMMENTS: There have been few detections above the PHG and MCL is 1.7 times the PHG. Thus, we do not plan on further review of the 1,1-dichloroethane MCL.

- 1,2-Dichloropropane - MCL = 5 ppb; DLR = 0.5 ppb; PHG = 0.5 ppb.
  Basis for PHG: Cancer risk, based upon experimental studies in mice. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 1 X 10-6. Cancer risk at MCL: 1 X 10-5.
  Detections (2012-2015): 19 sources with a peak detection above the PHG and 0 above the MCL.
  COMMENTS: There have been few detections, and the MCL is 10 times the DLR and PHG. Thus, we do not plan on further review of the 1,2-dichloropropane MCL.

- 1,3-Dichloropropene - MCL = 0.5 ppb; DLR = 0.5 ppb; PHG = 0.2 ppb.
  Basis for PHG: Cancer risk, based upon experimental studies in rodents. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 2.5 X 10-6. Cancer risk at MCL: 2.5 X 10-6.
  Detections (2012-2015): 1 source with a peak detection above the PHG (i.e., equal to or greater than the DLR) and the MCL.
  COMMENTS: There have been few detections, and the MCL is equal to the DLR and 2.5 times the PHG. Thus, we do not plan on further review of the 1,3-dichloropropene MCL.

- Styrene - MCL = 100 ppb; DLR = 0.5 ppb; PHG = 0.5 ppb.
  Basis for the PHG: Cancer risk, based upon laboratory studies in rodents. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 1 x 10-6. Cancer risk at MCL: 2 X 10-4.
  Detections (2012-2015): 2 sources with peak detections above the PHG and 0 above the MCL.
  COMMENTS: The PHG, established in 2010, is based on cancer risk while the prior health concern was related to non-cancer effects. Thus, scientific evidence presented in the PHG indicates that styrene might present a materially different risk to public health than was previously determined. However, even though styrene was detected in 2012 in 2 sources with peak concentrations of 1 and 1.1 ppb, subsequent sampling of those sources showed no detections. Given these findings, we do not plan on further review of the styrene MCL.

- Tetrachloroethylene (Perchlorethylene, PCE) - MCL = 5 ppb; DLR = 0.5 ppb; PHG = 0.06 ppb.
  Basis for the PHG: Cancer risk, based upon experimental studies in rodents. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 8.3 X 10-6. Cancer risk at MCL: 8.3 x 10-5.
  Detections (2012-2015): 465 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR), and119 above the MCL.
  COMMENTS: We are not aware of changes in treatment that would permit materially greater protection of public health, nor of new scientific evidence of a materially different public health risk than was previously determined. PCE is among the more frequently detected organic contaminants. Its MCL is 10 times the DLR. We have previously mentioned our intention to examine the PCE detections, and to develop a cost benefit analysis of possible MCL revisions. Our intention initially was to perform this evaluation along with a similar analysis for TCE, another frequently detected VOC contaminant (see below). However, because OEHHA is reviewing the TCE PHG, we have put the review of both of these VOCs on hold. We note at the federal level, in 2012 US EPA released its evaluation of PCE and determined that a concentration of 20 ppb in drinking water is associated with a 10-6 lifetime cancer risk. (Go to US EPA's Integrated Risk Information System (IRIS) - PCE).

- 1,1,2-Trichloroethane - MCL = 5 ppb; DLR = 0.5 ppb; PHG = 0.3 ppb.
  Basis for PHG: Cancer risk, based on experimental studies in mice. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 1.7 X 10-6. Cancer risk at MCL: 1.7 X 10-5.
  Detections (2012-2015): 5 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 1 above the MCL.
  COMMENTS: There have been few detections and the MCL is 10 times the DLR. Thus, we do not plan on further review of the 1,1,2-trichloroethane MCL.

- Trichloroethylene (TCE) - MCL = 5 ppb; DLR = 0.5 ppb; PHG = 1.7 ppb.
  Basis for the PHG: Cancer risk, based upon experimental studies in mice. Cancer risk at PHG: 1 X 10-6. Cancer risk at MCL: 2.9 x 10-6.
  Detections (2012-2015): 243 sources with a peak detection above the PHG and 140 above the MCL.
  COMMENTS: TCE is among the more frequently detected organic contaminants. The MCL is about 3 times the PHG established in 2009. In 2001, when the PHG was at a lower concentration (0.8 ppb), considering the large number of TCE detections, even though there were no changes in treatment techniques nor new scientific evidence regarding different risks to public health, we developed a draft cost benefit analysis (PDF) of possible MCL revisions. No public comment period was scheduled for that document. In July 2004, when OEHHA announced its plans to review the PHG for TCE, we suspended our evaluation of TCE. In 2012, OEHHA announced its intention to review the PHG for TCE. At the present time we no longer plan on further review of the TCE MCL. If a review is performed in the future, it will likely be done along with a similar analysis for PCE, as mentioned above. At the federal level, in 2011 US EPA released an assessment of the human health risks associated with TCE and determined that a concentration of 0.5 ppb is associated with a 10-6 lifetime cancer risk. (Go to US EPA's IRIS - TCE.

Synthetic Non-Volatile Organic Chemicals (2)

- 1,2-Dibromo-3-chloropropane (DBCP) - MCL = 0.2 ppb; DLR = 0.01 ppb; PHG = 0.0017 ppb.
  Basis for PHG: Cancer risk, based upon experimental studies in mice. Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 5.9 X 10-6. Cancer risk at MCL: 1.2 x 10-4.
  Detections (2012-2015): 365 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR), and 92 above the MCL, even though DBCP's use as a fumigant has been prohibited for many years.
  COMMENTS: Previously we considered DBCP to be a candidate for possible MCL revision, given the number of detections and the 20-fold difference between the MCL and the DLR. At the end of the process, we concluded (PDF) that reduction of the current MCL (i.e., making it more stringent) would not be economically feasible. As a result of the findings of the prior evaluation, we do not plan on further review of the DBCP MCL.

- Ethylene dibromide (EDB) - MCL = 0.05 ppb; DLR = 0.02 ppb; PHG = 0.01 ppb.
  Basis for PHG: Cancer risk, based upon forestomach tumors in experimental studies in rats and mice.
  Cancer risk at PHG: 1 X 10-6. Cancer risk at DLR: 2.5 X 10-6. Cancer risk at MCL: 5 X 10-6.
  Detections (2012-2015): 12 sources with a peak detection above the PHG (i.e., equal to or greater than the DLR) and 7 above the MCL.
  COMMENTS: There are few detections and the MCL is just 2.5 times the DLR and 5 times the PHG. Thus, we do not plan on further review of the EDB MCL.