State Water Resources Control Board

Division of Drinking Water January 2019

#### Preparing

**Your California**

Drinking Water

**Consumer Confidence Report (CCR)**

**Reference Manual for Water Suppliers**

January 2019 update

(Information added since January 2018 has been highlighted in yellow; out-of-date suggestions and recommendations have been deleted)

**Disclaimer**

This document provides information to water suppliers on the State Water Resources Control Board (State Board), Division of Drinking Water’s current interpretation of the California Consumer Confidence Report (CCR) regulations that took effect May 26, 2001, and were revised September 1, 2006. The reference manual is designed to implement State and national policy on these issues. This document is not a substitute for regulations; nor is it a regulation itself. Thus, it does not impose legally‑binding requirements on the State Board or water suppliers, and may not apply to a particular situation based upon its circumstances. This document does not confer legal rights or impose legal obligations upon any member of the public. While the State Board has made every effort to ensure the accuracy of the discussion in this document, the statutes, regulations, or other legally binding requirements determine the obligations of the regulated community. In the event of a conflict between the discussion in this document and any statute or regulations, this document would not be controlling.

The general description provided here may not apply to a particular situation based on the circumstances. Interested parties are free to raise questions and objections about the substance of this reference manual and the appropriateness of its application to a particular situation. State decision makers retain the discretion to adopt approaches on a case‑by‑case basis that differ from this reference manual where appropriate. The State Board may change this manual in the future.

**NOTE:** Subsequent to the 2018 CCR, there may be changes in required content in terms of newly adopted Maximum Contaminant Levels, Public Health Goals, and other revised regulatory requirements. These will be posted on the State Board’s website at <https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/CCR.html>, but the reference manual itself may not be revised accordingly, most specifically, the appendices. Therefore, the water supplier should be aware that this reference manual provides the details necessary to do only the CCR due July 2019.

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**Acronyms and Abbreviations**

|  |  |
| --- | --- |
| AL | Action Level |
| AWQR | Annual Water Quality Report |
| CCR | Consumer Confidence Report |
| CDC | Centers for Disease Control |
| CFR | Code of Federal Regulations |
| CT | Contact-Time |
| CWS | Community Water System |
| DDW | Division of Drinking Water |
| DLR | Detection Limit for Purposes of Reporting |
| DWSRF | Drinking Water State Revolving Fund |
| FBRR | Filter Backwash Recycling Rule |
| GWR | Ground Water Rule |
| GWUDI | Groundwater Under the Direct Influence of Surface Water |
| HAA5 | Sum of Five Regulated HAAs, *i.e.*, Monochloroacetic Acid, Monobromoacetic Acid, Dichloroacetic Acid, Dibromoacetic Acid, and Trichloroacetic Acid |
| HAA6Br | Sum of Bromochloroacetic Acid, Bromodichloroacetic Acid, Dibromoacetic Acid, Dibromochloroacetic Acid, Monobromoacetic Acid, and Tribromoacetic Acid |
| HAA9 | Sum of Bromochloroacetic Acid, Bromodichloroacetic Acid, Chlorodibromoacetic Acid, Dibromoacetic Acid, Dichloroacetic Acid, Monobromoacetic Acid, Monochloroacetic Acid, Tribromoacetic Acid, and Trichloroacetic Acid |
| HIV/AIDS | Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome |
| HMX | Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine |
| HSC | Health and Safety Code |
| IESWTR | Interim Enhanced Surface Water Treatment Rule |
| LCR | Lead and Copper Rule |
| LPA | Local Primacy Agency |
| LRAA | Locational Running Annual Average |
| LT1ESWTR | Long-Term 1 Enhanced Surface Water Treatment Rule |
| LT2ESWTR | Long-Term 2 Enhanced Surface Water Treatment Rule |
| MCL | Maximum Contaminant Level |
| MCLG | Maximum Contaminant Level Goal |
| MDA | Minimum Detectable Activity |
| mg/L | milligrams per liter |
| MIBK | Methyl Isobutyl Ketone |
| MRDL | Maximum Residual Disinfectant Level |
| MRDLG | Maximum Residual Disinfectant Level Goal |
| mrem | millirems |
| mrem/yr | millirems per year |
| N/A | Not Applicable |
| ND | Non-Detected |
| NDEA | N-Nitrosodiethylamine |
| NDMA | N-Nitrosodimethylamine |
| NDPA | N-Nitrosodi-n-propylamine |
| NL | Notification Level |
| NTNCWS | Nontransient-noncommunity Water System |
| NTU | Nephelometric Turbidity Units |
| pCi/L | picocuries per liter |
| PDWS | Primary Drinking Water Standard |
| PFOA | Perfluorooctanoic Acid |
| PFOS | Perfluorooctanesulfonic Acid |
| PHG | Public Health Goal |
| ppb | parts per billion |
| ppm | parts per million |
| ppq | parts per quadrillion |
| ppt | parts per trillion |
| PWS | Public Water System |
| RAA | Running Annual Average |
| RDX | Hexahydro-1,3,5-trinitro-1-3-5-triazine |
| RTCR | Revised Total Coliform Rule |
| SDWA | Safe Drinking Water Act |
| Stage 1 D/DBPR | Stage 1 Disinfectants and Disinfection Byproducts Rule |
| Stage 2 D/DBPR | Stage 2 Disinfectants and Disinfection Byproducts Rule |
| State Board | State Water Resources Control Board |
| SWTR | Surface Water Treatment Rule |
| TBA | Tertiary Butyl Alcohol |
| TCP | 1,2,3-Trichloropropane |
| TCR | Total Coliform Rule |
| TNT | 2,4,6-Trinitrotoluene |
| TOC | Total Organic Carbon |
| TT | Treatment Technique |
| TTHM | Total Trihalomethanes, or Sum of Four Regulated THMs, *i.e.*, Chloroform, Bromodichloromethane, Dibromochloromethane, and Bromoform |
| UCMR | Unregulated Contaminant Monitoring Rule |
| U.S. EPA | United States Environmental Protection Agency |

# Introduction

This reference manual is intended to help water suppliers prepare their annual Consumer Confidence Reports (CCR). It explains the requirements for report content, format, and distribution required for conformance with the California Code of Regulations [Title 22, Chapter 15, Article 20] and law [California Health and Safety Code, HSC, section 116470]. The state regulations took effect on May 26, 2001, and were subsequently amended on September 1, 2006, with the adoption of the Public Notification regulations. Additional information on drinking water related laws and regulations is available on the State Board’s website (https://www.waterboards.ca.gov/drinking\_water/certlic/drinkingwater/Lawbook.html).

As the system operator/manager, you are a guardian of the quality of your drinking water supply and of the public health in your community. It is important to communicate to your customers, and your customers have the right to know, the source of their water and what is in the water they drink. CCRs help consumers to make informed choices that affect the health of themselves and their families. The reports also encourage consumers to consider and appreciate the challenges of delivering safe drinking water. Educated consumers are more likely to help protect their drinking water sources and to understand the true costs of safe drinking water.

Water suppliers, states, and the United States Environmental Protection Agency (U.S. EPA) are all working to educate consumers about the sources, quality, and delivery of their drinking water, and to increase their involvement in decisions about it. Systems and states encourage citizens to participate in decision-making regarding source water assessment and protection programs and use of the Drinking Water State Revolving Fund (DWSRF), which provides funding for infrastructure upgrades and treatment improvements. Consumers who are familiar with the basic drinking water information in CCRs will be able to participate more effectively in these processes.

# I. What is a consumer confidence report (CCR)?

In 1996, Congress amended the Safe Drinking Water Act (SDWA), adding a requirement that water systems deliver to their customers a brief annual water quality report, similar to the Annual Water Quality Report (AWQR) that California water systems began distributing in 1990. However, the CCR regulatory requirements are more specific and detailed in terms of content and format than those for the AWQR. These CCRs summarize information that your water system already collects to comply with regulations. The CCR regulation does not require you to engage in any new monitoring to complete your CCR.

The CCR includes information on source water, levels of any detected contaminants, and compliance with drinking water regulations (including monitoring requirements), along with some educational information. Most reports fit on a few sheets of paper. A report that contains *too much* information or is full of technical jargon can discourage consumers from learning about their drinking water. Beyond a mandatory requirement, a CCR is an opportunity to communicate the value of water (both as a product and as a service), to promote wise use, to build community trust and customer satisfaction, and to encourage investment in resource protection and infrastructure.

# II. Who must prepare a CCR?

Every community water system (CWS) and every nontransient-noncommunity water system (NTNCWS) must prepare and distribute a report.

A system may contract with a laboratory or other third-party to provide monitoring data analysis or CCR development assistance. If the system chooses to use a laboratory/third-party to assist with the development of the CCR, the system must work with the laboratory/third-party to make sure that all of the required elements are included in the CCR. Otherwise, a system may need to add the missing elements. Regardless of who prepared the CCR, the system is ultimately responsible of the content and must always distribute the CCR to its customer.

Wholesale systems (drinking water systems that sell water to one or more systems) are not responsible for creating a CCR for their consecutive systems (systems that purchase water from the wholesale system), nor are they responsible for providing data on contaminants that the consecutive system monitors (such as total coliforms, lead, or total trihalomethanes [TTHMs]). However, wholesale systems are responsible for providing the consecutive system with relevant source information and monitoring and compliance data so that the consecutive system can include this information in their CCR.

In some cases, a consecutive system will contract with the wholesale system to produce the report. There are several options in this relationship. If the consecutive system had no new data to add, it could simply send out the wholesale system’s CCR with a cover letter explaining their relationship. If the consecutive system did need to add data, it might choose to reprint the wholesaler system’s CCR with a new title/letterhead and the additional data (most consecutive systems will at least need total coliform data). Either of these options is acceptable. Regardless of who produces the CCR, the consecutive system is still responsible for ensuring that its customers receive a report containing all required content.

# III. When must a water system distribute its CCR?

You must deliver your annual CCR to consumers by July 1 of each year. The first report prepared according to the State CCR requirements was due July 1, 2001. The CCRs are based on data collected during, or prior to, the previous calendar year. For example, data collected between January 1 and December 31, 2018 must be reported in the 2018 CCR, which is due to customers by July 1, 2019. If you monitor less frequently than annually, you will need to use your most recent data even though it is outside of the previous calendar year. This is further discussed in Part IV, Item 4.

A new CWS or NTNCWS must deliver its first report by July 1 of the year after its first full calendar year in operation, and annually thereafter.

A wholesale system must provide the consecutive system with the previous calendar year’s monitoring data and other information by April 1 of each year unless the two systems make a different contractual agreement. This gives the consecutive system enough time to prepare their CCR before the July 1 deadline.

# IV. What content is required in the CCR?

This reference manual describes California’s requirements for a CCR and suggests (using the words “we encourage,” “should,” or “may”) other sections or explanations that will help your customers understand the report. Note that California requires more information and, in some cases, different information than the federal rule, so be sure to follow state regulations and this reference manual, not the federal rule or guidance. If you are familiar with the federal requirements, you should be aware of the following differences between the federal and state rules; the state regulations require:

* Both CWSs and NTNCWSs must distribute CCRs;
* Inclusion of public health goals (PHGs) in place of maximum contaminant level goals (MCLGs) for detected contaminants, unless no PHG has been adopted;
* Modified language for definitions;
* Additional definitions (PHG and primary drinking water standard, PDWS);
* Modified language for contaminant sources and health effects;
* Inclusion of secondary maximum contaminant levels (MCLs) for any detected contaminants along with any detected levels for sodium and hardness;
* Use of State MCLs only (U.S. EPA MCLs are not required);
* In addition to information on how to obtain a copy of a completed source water assessment, both the completion date (or when last updated) and a vulnerability summary written by the party conducting the assessment;
* A notice in Spanish informing people that the information therein is important; notices in other languages are required if specific regulatory criteria is met [see California Code of Regulations, section 64481(l)].

The State Board encourages you to tailor the content of your CCR to local conditions, as long as it meets the federal and state regulations. If you think that an added picture or graph would help your customers to understand your report, add it. If your customers would benefit from an explanation of your need for new treatment facilities, tell them. Provide information to your consumers in a way that they understand. For example, when discussing units of measure, explain it in terms that a consumer may understand, as shown in the table below. As long as any additional educational information is consistent with, and not detracting from, the purpose of the report, you may add it. For example, the CCR regulation does not require a title for your report. However, you should give your report a title to catch the customer’s attention. You may call the report a “Consumer Confidence Report,” a “Water Quality Report,” or choose another title.

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| **Units** | | **Equivalence** |
| mg/L – milligrams per liter | ppm – parts per million | 1 second in 11.5 days |
| µg/L – micrograms per liter | ppb – parts per billion | 1 second in nearly 32 years |
| ng/L – nanograms per liter | ppt – parts per trillion | 1 second in nearly 32,000 years |
| pg/L – picograms per liter | ppq – parts per quadrillion | 1 second in nearly 32,000,000 years |

Customers are most interested in a clear statement of whether or not their drinking water meets all standards. Although it is not required by the regulations, you will help your customers if you tell them whether their water met all drinking water standards. Be cautious in using the word “safe” since water that meets standards and is safe for most people might not be safe for infants, chemotherapy patients, or people with HIV/AIDS. Also, using the term “safe” if you have had an MCL or regulatory action level (AL) exceedance can be misleading to customers.

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| ***EXAMPLE*** *– Last year, as in years past, your tap water met all U.S. EPA and State drinking water health standards. [****Water System****] vigilantly safeguards its water supplies and once again, we are proud to report that our system has never violated a maximum contaminant level or any other water quality standard. [***or, if you had a violation, begin with*:*** *Last year, we conducted more than \_\_ tests for over 80 contaminants. We only detected \_\_ of these contaminants, and found only \_\_ at a level higher than the State allows. As we told you at the time, our water temporarily exceeded drinking water standards. For more information, see the paragraph marked* ***Violation*** *on the back.] This brochure is a snapshot of last year’s water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. We are committed to providing you with information because informed customers are our best allies.* |

Research conducted by the Water Research Foundation (formerly the American Water Works Association Research Foundation) described three important phases in facilitating customer understanding of the information in a CCR:

* **Initial Sort**: Customers are less likely to discard the CCR as “junk mail” if it looks professional, distinct, and prominently displays the utility’s name. However, glossy full-color reports are not necessary.
* **Skimming**: For the reader who chooses to skim the document, important and concise messages about water quality that are prominently displayed will attract attention. However, statements about the safety of water should not be over-stated, and specific warnings regarding health risks for sensitive sub-populations must be included. The use of color will draw attention and can be used to guide the reader through the CCR. Maps, simple tables, and photographs present information quickly and effectively.
* **Reading**: If the above challenges are addressed, a customer will hopefully choose to read the entire CCR. The document should not be designed to persuade the reader, it should inform the reader. A brief table of contents at the very beginning will help to guide the reader. Contaminant tables should be simple and should not require special instructions. The use of large fonts in an uncrowded format is desirable. Discussions regarding detected contaminants are helpful and should promote creditability.

Eight basic items must be included in all CCRs. These items are summarized in the Checklist for Completed CCR shown on the next page, and further discussed in detail below.

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| **CHECKLIST FOR COMPLETED CCR**  **Basic CCR Requirements** |
| **Item 1 – Water System Information** |
| 🞏 Name and phone number of contact person |
| 🞏 Information on public participation opportunities |
| 🞏 Information in Spanish that report content is important or offer additional information |
| 🞏 Information for other non-English speaking populations, if applicable |
| **Item 2 – Sources of Water** |
| 🞏 Type, name, and location of water sources |
| 🞏 If source water assessment completed: completion date (or when last updated), availability and how to obtain it, and vulnerability assessment |
| **Item 3 – Definitions (specific language)** |
| 🞏 MCL |
| 🞏 MCLG |
| 🞏 PHG |
| 🞏 PDWS |
| 🞏 Others as needed (MRDL, MRDLG, AL, TT, variances and exemptions) |
| **Item 4 – Reported Levels of Detected Contaminants (in one or more tables)** |
| 🞏 Summary of data on detected regulated and unregulated contaminants [both federal and state lists] |
| 🞏 MCL or MRDL expressed as a number equal to or greater than 1.0 and the PHG (or MCLG) or MRDLG in the same units |
| 🞏 TT or AL designation if there is no MCL or MRDL |
| 🞏 Compliance monitoring data in MCL/MRDL units for year of report, with detected level and range of sample results (see regulations and information in Appendix F) |
| 🞏 For turbidity: reporting differs (see regulations and information in Appendix F) |
| 🞏 For coliforms: reporting differs (see regulations and information in Appendix F) |
| 🞏 For lead/copper: 90th percentile value, number of sites sampled, number of sites exceeding ALs, and number of schools that have requested lead sampling |
| 🞏 For unregulated contaminants: average and range of contaminant detections |
| 🞏 If monitoring less than once a year: date of most recent sample, result, and statement that data are from most recent sampling |
| 🞏 Known or likely source of each detected contaminant with an MCL/MRDL/TT/AL |
| 🞏 MCL/MRDL/TT/AL violations highlighted |
| 🞏 Definitions of all units used in the table |
| **Item 5 – Information on Monitoring for *Cryptosporidium*, Radon, and Other Contaminants** |
| 🞏 Warning for vulnerable populations about *Cryptosporidium*, if detected |
| 🞏 Explanation of radon and its presence in the finished water, if detected |
| 🞏 Explanation of unregulated contaminants and their presence in drinking water, if detected |
| **Item 6 – Compliance with Other Drinking Water Regulations** |
| 🞏 Explanation of violation: length of violation, potential health effects (health effects language available for primary MCL, MRDL, TT and AL), and steps taken to correct the violation |
| 🞏 Special notices for groundwater users to meet the requirements of the Ground Water Rule (GWR)  🞏 Language for Level 1 and Level 2 Assessment Requirements and TT Violations, *Escherichia coli* (*E. coli)* MCL Violation, and *E. coli* Detection |
| **Item 7 – Variances and Exemptions** |
| 🞏 Explanation of variance/exemption, if applicable |
| **Item 8 – Required Educational Information (specific language)** |
| 🞏 Explanation of contaminants and their presence in drinking water |
| 🞏 Explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water |
| 🞏 Information to customers that some people may be more vulnerable to contaminants in drinking water |
| 🞏 Informational statements on nitrate, arsenic, and lead, if applicable |

## Item 1: Water system information

Identify the name of your water system, and provide the following information about it:

 The name and telephone number of a person at the water system who can answer questions about the report;

 A list of known opportunities for public participation in decisions that affect drinking water quality (*e.g.*, time and place of regularly-scheduled water board or city/county council meetings). If you do not have regularly-scheduled meetings, tell customers how to get information when meetings are announced.

Consistent with the California Code of Regulations, section 64481(l), all water systems in California must contain information in Spanish expressing the importance of the report or offer additional information (*i.e.*, a telephone number or address where Spanish-speaking residents may contact the system to obtain a translated copy of the report in Spanish or assistance in Spanish). In addition, for each non-English speaking group other than Spanish-speaking that exceeds 1,000 residents or 10 percent of the residents in the community, the system must include information in the appropriate language(s) expressing the importance of the report, or offer additional information in that language (*i.e.*, a telephone number or address where such residents may contact the system to obtain a translated copy of the report, or assistance in the appropriate language).

To help determine what languages are needed, water systems can get information on non-English speaking populations from census data (https://www.census.gov/), county offices, and local agencies supporting different ethnic groups. In addition, the State Board’s website (<https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/CCR.html>) offers CCR templates in Spanish, Mandarin, Tagalog, Vietnamese and Hmong. For additional languages spoken by more than 1,000 residents or 10 percent of the residents, the suggested statement shown below can be included in the CCR to inform customers of the importance of the CCR, and where they can find assistance. Appendix H presents translations of the suggested statement in 18 of the languages most spoken in California[[1]](#footnote-1).

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| ***EXAMPLE*** *–* *This report contains important information about your drinking water. Please contact [****Enter Water System’s Name Here****] at [****Enter******Water System’s Address or Phone Number Here****] for assistance in [****Language****].*   * **Spanish:** Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse [***Enter Water System’s Name Here***] a [***Enter*** ***Water System’s Address and Phone Number Here***] para asistirlo en español. * **Tagalog:** Ang pag-uulat na ito ay naglalaman ng mahalagang impormasyon tungkol sa inyong inuming tubig. Mangyaring makipag-ugnayan sa [***Enter Water System’s Name and Address Here***] o tumawag sa [***Enter Water System’s Phone Number Here***] para matulungan sa wikang Tagalog. * See Appendix H for additional translations of the above sentences. |

## Item 2: Source(s) of water

Describe your water type (*e.g.*, groundwater, surface water, or a blend), the commonly-used name(s) (if such a name exists), and the general locations of your water source(s) (*e.g.*, Well 1 located in our service area; East Well from the *name-of-aquifer*; or South Spring located in *name-of-foothill, mountain, or watershed area*)*.*  We encourage you to provide a simple map of your system’s sources without a detailed description of their location for security reasons. Note that water systems currently have the flexibility to address security concerns. Listing the water body where the intake is located for a surface water source and the name of the principal aquifer for a groundwater source would be appropriate. Treatment plant location is not required.

For more complicated systems, explaining your various interconnections and back-up sources may be difficult, but it is important that consumers understand that the source of their water may vary during the year. Remember to include in your table of detected contaminants monitoring data for these “additional” sources if you use water from them. If your situation is complex, you may need to describe the types of sources and how they are used; work with someone from the State Board or Local Primacy Agency (LPA) to decide what information belongs in your report.

If a source water assessment has been completed, tell customers the date it was completed (or last updated), that it is available, where to get a copy, and provide a brief summary of your source water’s vulnerability to contamination based on the assessment findings.

In cases where the information is available, we encourage you to highlight potential significant source of contamination in the source water area. Including this information in the CCR is an opportunity for you to provide customers with an explanation for why a contaminant is present in the source water.

If the State Board or LPA conducted the assessment, it will provide the summary for you to include. If you conducted your own assessment, you may write the summary yourself. The following is an example provided by the Drinking Water Source Assessment and Protection Program.

|  |
| --- |
| ***EXAMPLE*** *– An assessment of the drinking water source(s) for [****Water System****] was completed in [****month and year****]. The source(s) are considered most vulnerable to the following activities associated with contaminants detected in the water supply: \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_. In addition, the source is considered most vulnerable to these activities: \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_.*  *A copy of the complete assessment is available at* ***[State Water Resources Control Board, Division of Drinking Water District Office Address or Water System Address****]. You may request a summary of the assessment be sent to you by contacting [****State Water Resources Control Board, Division of Drinking Water District Engineer or Water System Representative****] at [****Phone Number****]*. |

If you do not have information from the source water assessment, we encourage you to include any other information about potential sources of contamination that is readily available to you; *e.g.*, information contained in a sanitary survey.

We also encourage you to use the CCR as a way to discuss appropriate source water protection actions that are in the planning stages or are already in place. This discussion is an ideal opportunity to invite public participation in locally based source water protection efforts as well. Systems may also wish to provide ways they can protect the source water. Remember, this is your opportunity to educate your customers about the impacts they and others have on the quality of source water.

## Item 3: Definitions

Every CCR must include definitions of key terms that consumers will need to understand the contaminant data. You must use the definitions listed below.

 **Maximum Contaminant Level (MCL)**: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

 **Maximum Contaminant Level Goal (MCLG)**: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

* **Public Health Goal (PHG)**: The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
* **Primary Drinking Water Standard (PDWS)**: MCLs, MRDLs and treatment techniques (TTs) for contaminants that affect health, along with their monitoring and reporting requirements.

Include the following definitions only if you treat your water with a chemical disinfectant in any part of the treatment process or provide water that contains a chemical disinfectant:

* **Maximum Residual Disinfectant Level (MRDL)**: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
* **Maximum Residual Disinfectant Level Goal (MRDLG)**: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Include the following definitions only if your report contains information on a detected contaminant that is regulated by an AL (*e.g.*, lead) or a TT (*e.g.*, turbidity):

* **Regulatory Action Level (AL)**: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
* **Treatment Technique (TT)**: A required process intended to reduce the level of a contaminant in drinking water.

Include the following definition only if your water system operated under a variance or exemption during the calendar year that the report describes:

* **Variances and Exemptions**: State Board permission to exceed an MCL or not comply with a TT under certain conditions.

Include the following definitions only if your report contains information regarding a Level 1 or Level 2 Assessment required under the federal Revised Total Coliform Rule:

* **Level 1 Assessment**: A Level 1 Assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
* **Level 2 Assessment**: A Level 2 Assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an (*Escherichia coli*) (*E. coli*) MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

## Item 4: Reporting levels of detected contaminants

An essential part of the CCR is the table that shows the highest level of each detected contaminant (this is usually the value you report to the State Board to determine compliance) and range of levels of that contaminant you found during the CCR calendar year (assuming more than one sample was collected). When treatment is provided and monitoring of the treated water is performed, the available treated water quality data may be used in lieu of untreated (raw) source water quality data (see page 17, Item 5.c). See Appendix F for how to interpret monitoring data and determine the levels to enter in the tables.

A detected contaminant is any contaminant detected at or above its detection level for purposes of reporting (DLR) (see Appendix E). Do not include contaminants in the table that are not detected, or are detected below the DLR. If you sometimes distribute water from emergency or back-up sources, you generally need to include monitoring results from these sources in the ranges of detections that you report in the table, unless the source’s contribution is insignificant (*e.g.*, one day per year).

The main table of detected contaminants must contain only data about: (1) regulated contaminants [contaminants subject to an MCL, MRDL, AL, or TT], (2) unregulated contaminants for which U.S. EPA or the State Board requires monitoring under Title 40 of the Code of Federal Regulations (CFR) section 141.40[[2]](#footnote-2) or HSC section 116375(b), respectively, and (3) sodium and hardness. See Item 5 for special instructions about *Cryptosporidium*, radon, and other contaminants.

You may make several tables to separate regulated contaminants from unregulated contaminants. You may want to organize your table(s) by contaminant type (*e.g.*, microbial, inorganic) or sampling site (*e.g.*, treatment plant, distribution system). Report any additional monitoring data in another section of the CCR, separated from the regulated contaminant data (*e.g.*, data specified in the regulations). If you want to list all the contaminants that you monitored but did not detect, you must do so outside of the table(s) of detected contaminants.

To ensure that consumers can easily compare detected contaminant levels to their MCLs, your table must display the MCL for each contaminant in units that express it as a number equal to or greater than 1.0. Appendix A shows the conversion factor for each contaminant. For contaminants with primary MCLs, report the PHG (use the MCLG if no PHG has been set) and level of the detected contaminant in the same units as the MCL. For example, atrazine is usually reported in mg/L. It is easier for customers to see that your water contains atrazine at a level two times lower than the MCL if you report the MCL as 1 µg/L and the detected level as 0.5 µg/L than if you were to report the MCL as 0.001 mg/L and the detected level as 0.0005 mg/L. In this case, you convert by multiplying the detected level and MCL by 1,000. When you round results to determine compliance, round before multiplying the results by these factors. If the MCL units for a contaminant are already expressed in a number greater than 1.0 (*e.g.*, the MCL for nitrate is 10 mg/L as nitrogen), there is no conversion factor to apply to the MCL or detected contaminant level. For monitoring of disinfectant residuals (*i.e.*, chlorine, chloramines, and chlorine dioxide), as required under the Stage 1 Disinfectants and Disinfection Byproducts Rule, use the same approach for the MRDL and MRDLG.

The CCR includes data from monitoring completed during the previous calendar year. For example, data collected between January 1 and December 31, 2018 must be reported in the 2018 CCR, which is due to customers by July 1, 2019. However, if you have monitoring waivers, or for another reason monitor less than once per year, use your most recent data even though it is outside of the calendar year. For example, if you monitor once every three years for lindane and detect lindane in a sample, report that detected level each of the three years until you take a new sample.

If the report contains detection data that are not from the calendar year indicated, the table must show the date of monitoring and the report must contain a brief statement explaining that the data presented are from the most recent monitoring done in compliance with regulations. The following shows an example of explanation that can be used for this purpose.

|  |
| --- |
| ***EXAMPLE*** *– The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.* |

You do not need to report monitoring results that are more than nine years old.

**THE TABLE MUST CONTAIN THE FOLLOWING INFORMATION, FOR EACH DETECTED CONTAMINANT:**

1) If the contaminant is regulated by a maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL) (see Appendices A and B):

a) The MCL or MRDL, expressed as a number equal to or greater than 1.0;

b) The PHG (or MCLG, if no PHG has been set) or MRDLG, expressed in the same units as the MCL or MRDL;

Note: Secondary MCLs do not have PHGs or MCLGs because secondary MCLs are set to protect the aesthetics of water and PHGs and MCLGs are based on health concerns.

c) The level of that contaminant expressed in the same units as the MCL and PHG (or MCLG, if no PHG has been set) or MRDL and MRDLG.

2) If the contaminant is regulated by a treatment technique (TT) (see Appendix A):

a) Put the letters “TT” in place of the MCL;

b) Put “N/A” (not applicable) in place of the PHG or MCLG when no PHG or MCLG is listed in Appendix A.

3) If the contaminant is regulated as an action level (AL) (see Appendix A):

a) The AL expressed as a number equal to or greater than 1.0;

b) The PHG (or MCLG, if no PHG has been set) in the same units as the AL.

4) If the contaminant is unregulated (*i.e.*, monitoring was required under the federal or state Unregulated Contaminant Monitoring Rule [UCMR]) (see Appendix C):

a) The average level of that contaminant and the range of detections.

5) The level of the contaminant must be represented as follows (see Appendix F for examples):

a) If compliance with an MCL is determined by the results of a single sample, an initial sample averaged with one or two confirmation sample(s), or an average of four quarterly or six monthly samples, report the results as follows:

* For a single sampling site, or multiple sampling sites for which data are being individually listed in the CCR, include the sample result. If more than one sample was collected, include the average, and range of sample results.
* For more than one sampling site, each of which has been sampled only once and for which data are being summarized together in the CCR, include the average and range of sample results. If the waters from the sampling sites are entering the distribution system at the same point, a flow-weighted average may be reported.
* For multiple sampling sites, one or more of which has been sampled more than once and for which data are being summarized together in the CCR, include the average of the individual sampling site, and the range of all sample results. If the waters from the sampling sites are entering the distribution system at the same point, a flow-weighted average may be reported.

b) If compliance is determined by a running annual average (RAA) of all the samples taken from a sampling point (*e.g.*, chemical contaminants), include the highest RAA (as reported to the State Board for compliance purposes), and the range of sample results. If sampling points are summarized together, include the highest RAA of any of the sampling points. and the range of sample results from all sampling points

c) If compliance is determined by monitoring after treatment is installed to remove a contaminant, include the average level detected in the water entering the distribution system, and the range of sample results.

d) If a compliance determination was made in the year for which sample results are being reported and the determination was based on an average of results from both the previous and reporting years, include the highest compliance determination average and the range; where the range is based only on results from the year for which data are being reported.

e) For total trihalomethanes (TTHM) and haloacetic acids (HAA5):

* Compliance is determined based on a locational running annual average (LRAA). Include the highest LRAA for TTHM and HAA5 and the range of individual samples results for all monitoring locations. If more than one monitoring location exceeds the TTHM or HAA5 MCL, include the LRAA for all locations that exceed the MCL.

f) For turbidity:

* When turbidity is reported pursuant to California Code of Regulations, Title 22, section 64652.5 (*i.e.*, regulated as a TT for systems that have met criteria for avoiding filtration), include the highest single measurement found in any month. You should explain the reasons for measuring turbidity. The following shows an example of explanation that can be used for this purpose.

|  |
| --- |
| ***EXAMPLE*** *– Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.* |

* When turbidity is reported pursuant to California Code of Regulations, section 64653 (*i.e.*, regulated as a TT for systems that filter and use turbidity as an indicator of filtration performance), include the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in section 64653 for the relevant filtration technology. You should explain the reasons for measuring turbidity. The following shows an example of explanation.

|  |
| --- |
| ***EXAMPLE*** *– Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.* |

g) For lead and/or copper:

* Include the 90th percentile value from the most recent sampling (if it is a number greater than zero), number of sites sampled, the number of sites that exceeded the AL, and the number of schools that have requested lead sampling. Do not report related water quality parameter data.

h) For total coliforms, fecal coliforms, and *E. coli* under the state Total Coliform Rule (TCR) and federal Revised Total Coliform Rule (RTCR):

State TCR (monitoring from January 1 through December 31, 2018):

* For total coliforms (systems that collect fewer than 40 samples per month), include the highest number of positive samples collected in any one month;
* For total coliforms (systems that collect 40 or more samples per month), include the highest percentage of positive samples collected in any one month;
* For fecal coliforms and *E. coli*, include the total number of positive samples collected that year.

Federal RTCR (monitoring from January 1 through December 31, 2018):

For CCR reporting, the below applies only to CWSs. NTNCWSs are encouraged to include the information in the CCR to keep their customers informed.

* For *E. coli*, include the total number of positive samples collected that year.

State TCR and Federal RTCR:

If your water system had positive samples under the state TCR and federal RTCR, you should consider including an explanation to facilitate a better understanding of the public health differences of the two rules. The following shows an example of explanation that can be used for this purpose.

|  |
| --- |
| ***EXAMPLE*** *– This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2016. All water systems are required to comply with the state Total Coliform Rule. Effective April 1, 2016, all water systems are also required to comply with the federal Revised Total Coliform Rule. The new federal rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (*i.e.*, total coliform and* E. coli *bacteria). The U.S. EPA anticipates greater public health protection as the new rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these must be corrected by the water system.* |

i) For fecal indicator-positive source samples under the Ground Water Rule (GWR):

* For *E. coli*, list the MCL and MCLG as zero;
* For enterococci or coliphage, list “TT” in the column for MCL and “N/A” in the column for MCLG;
* For *E. coli*, enterococci, or coliphage, include the total number of positive samples for the year and special notice language provided in the table or elsewhere in the CCR. Refer to Item 6 for more information on special notice language requirements for fecal indicator-positive groundwater source samples.

j) For beta particles:

* If you detect beta particles in your water at or below 50 pCi/L, you should report the detected level in pCi/L. So that consumers may have a standard against which to compare that detected level, you should include “*50 pCi/L*\*” in the MCL column (rather than the actual MCL of 4 mrem/year) and a footnote to the table that says “*\*The* *State Water Resources Control Board considers 50 pCi/L to be the level of concern for beta particles.*”
* If you detected beta particles above 50 pCi/L, you must determine the actual radioactive constituents present in the water to calculate the dose exposure level in mrem/year, and must report the detected level and MCL as mrem/year.

1. In addition to detected contaminants, the CCR regulations require that all TT violations be reported in a detected contaminant table(s). TT violations are listed below and are organized by rule (refer to Item 6 for specific information about failure to install adequate filtration or disinfection equipment or processes or a failure of those processes, violations associated with acrylamide and epichlorohydrin, and violations associated with the Lead and Copper Rule, LCR).

* Surface Water Treatment Rule (SWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), and Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR)
  + Failure to install adequate filtration or disinfection equipment or processes;
  + Failure of the filtration or disinfection equipment or process;
  + Failure to meet inactivation requirements at the treatment plant (CT value);
  + Failure to maintain at least 0.2 mg/L disinfection residual at the distribution system entry point for more than 4 hours;
  + Failure to maintain a distribution system disinfectant residual;
  + Failure to meet source water quality conditions (only filtration avoidance systems);
  + Failure to meet watershed control program requirements (only filtration avoidance systems);
  + Failure to have redundant components for disinfection or automatic shut-off of water delivered to the distribution system (only filtration avoidance systems).
    - Filter Backwash Recycling Rule (FBRR)
      * Failure to return recycle flows through the processes of the existing filtration system or to an alternate State Board-approved location (only conventional and direct filtration systems).
* Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)
  + Failure to cover an uncovered finished water reservoir, provide treatment of the reservoir’s discharge (to achieve inactivation and/or removal of at least 4-log virus, 3-log *Giardia lamblia*, and 2-log *Cryptosporidium* using a protocol approved by the State Board), or be in compliance with a State Board-approved schedule to cover the reservoir(s) or treat the reservoir(s) discharge.
  + Filtered systems
  + Failure to determine and report bin classification;
  + Failure to provide or install an additional level of treatment using a microbial toolbox option by the required date;
  + Failure to achieve required treatment credit to meet the bin classification requirements using a microbial toolbox option.
    - Unfiltered systems
      * Failure to calculate and report mean *Cryptosporidium* level;
      * Failure to install a second disinfectant to treat for *Cryptosporidium* by required date;
      * Failure to achieve required inactivation level by required date;
      * Failure to maintain required inactivation level based on mean *Cryptosporidium* results.
        + Ground Water Rule (GWR)
* Failure to maintain at least 4-log treatment of viruses for more than 4 hours for groundwater systems that are required to treat;
* Failure to take corrective action, if necessary based on a fecal indicator-positive sample, or be in compliance with a plan and schedule for a fecal indicator-positive groundwater source sample;
* Failure to take corrective action, if necessary based on a significant deficiency, or be in compliance with a plan and schedule for a significant deficiency.
  + - * + Lead and Copper Rule (LCR)

Failure to meet corrosion control treatment, source water treatment, lead service line replacement, or public education requirements.

* Chemical
* Acrylamide – Exceedance of specified level (*i.e.*, 0.05 percent monomer in polyacrylamide dosed at 1 mg/L, or equivalent);
* Epichlorohydrin – Exceedance of specified level (*i.e.*, 0.01 percent residual at of epichlorohydrin dosed at 20 mg/L, or equivalent).
* Federal Revised Total Coliform Rule

For CCR reporting, the below applies only to CWSs. NTNCWSs are encouraged to include TT violations in the CCR to keep their customers informed.

* When a water system exceeds a TT trigger specified in 40 CFR section 141.859(a) and then fails to conduct the required Level 1 or Level 2 Assessment or corrective actions within the timeframe specified in 40 CFR section 141.859(b) and (c);
* For a seasonal system, failure to complete a State Board-approved start-up procedure prior to serving water to the public.

The State Board recommends that systems include TT violations listed in (k) above in a table adjacent to the main detected contaminant table. The table must include an explanation of the violation, the length of the violation, any potential adverse health effects, and steps taken to correct the violation. The following is an example of a GWR TT violation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TT Violation | Explanation | Length | Steps Taken to Correct the Violation | Health Effects Language |
| Failed to maintain 4-log treatment of viruses | On January 10, 2018, state inspection of our water system identified a malfunctioning chlorine pump. As a result, the water from one of our wells (Well 1) was not adequately disinfected for 2 weeks. | 2 weeks | As directed by the State Water Resources Control Board, we took immediate action to resolve this problem by repairing the malfunctioning chlorine pump. Regular testing since the pump was repaired has demonstrated that we are once again providing water that meets the state’s standards for disinfection to our customers. | Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |

l) The likely source(s) of that contaminant, to the best of your knowledge. If the source of the contamination is known, the CCR should identify a specific point source, such as “Al’s chicken houses” or the “Super-Shiny Paper Mill”. If you lack specific information on the likely source of a contaminant, include one or more of the typical sources listed in Appendix A (for chemicals with primary MCLs, MRDLs, TTs and ALs) and Appendix B (for chemicals with secondary MCLs) that is most applicable to your situation.

m) For any contaminant detected in violation of a MCL, MRDL, or TT, or exceeding an AL, clearly highlight in the table the violation or exceedance. This indication could, for example, take the form of a different color type, a larger or bolder font, or a large star. Near, but not in, the table, include an explanation of the length of the violation/exceedance, potential adverse health effects (from Appendix A for primary MCLs, MRDLs, TTs and ALs), and actions you took to address the violation/exceedance.

n) If you have detected unregulated contaminants for which State Board or federal rules require(d) monitoring (*e.g.*, federal UCMR, 40 CFR section 141.40, or HSC section 116375(b), except *Cryptosporidium*) include the average of all of the year’s monitoring results and the range of detections. See Appendix C for lists of these contaminants.

We encourage you to include more information on the potential health effects of these contaminants if the results indicate a health concern. We consider any detection above a proposed MCL, California Notification Level (NL), or U.S. EPA health advisory level to indicate concern. You may call the Safe Drinking Water Hotline (1-800-426-4791) for this information or find it at https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables. California NLs are available on the State Board’s website (<http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.shtml>). For these contaminants, the State Board recommends that the report contain an explanation of the significance of the results, noting the existence of the proposed MCL, California NL (see Appendix D for available optional health effects language), or U.S. EPA health advisory.

You may wish to explain the reasons for unregulated contaminant monitoring with a statement like the following.

|  |
| --- |
| ***EXAMPLE*** *– Unregulated contaminant monitoring helps U.S. EPA and the State Water Resources Control Board to determine where certain contaminants occur and whether the contaminants need to be regulated.* |

### Multiple distribution systems

If your water system supplies water through two or more distribution systems that are not physically interconnected and that are fed by different raw water sources, you must issue a CCR that includes information on the source water, levels of any detected contaminants, and compliance with drinking water rules for all distribution systems. You may issue one or multiple reports to your customers. If you issue one report, make sure to include a separate column of detection data for each service area in the main table of detected contaminants.

### Including Tier 3 Public Notices in CCRs

If you are required to provide a Tier 3 public notice for a monitoring violation or other type of violation or situation, you may consider including the notice in your CCR. If you use the CCR for public notification, make sure you meet the content requirements under the Public Notification Rule. Also, remember that the timing and delivery requirements for CCRs differ from those for public notices. Be careful to adhere to the Public Notification Rule requirement that Tier 3 public notice be completed no later than 12 months from the date the violation or situation occurred. To minimize the timing conflict, you can publish the CCR early – as soon after the end of the calendar year as possible; or mail a separate public notice for the violations occurring in January through June of the current year in the same envelope as your CCR covering the previous calendar year’s violations.

## Item 5: Reporting on *Cryptosporidium*, radon and other contaminants

### *Cryptosporidium*

If your system has performed monitoring that indicates the presence of *Cryptosporidium* in either the source water or the finished water, you must include the following information separate from the detected contaminant table:

* A summary of the results of monitoring. You should identify if the data are for the source water or finished water. You may choose whether or not to report the actual analytical results as part of this summary.
* An explanation of the significance of the results. Tell customers if they need to be concerned by the information that the CCR provides. The following shows an example of explanation that can be used for this purpose.

|  |
| --- |
| ***EXAMPLE*** *–* Cryptosporidium *is a microbial pathogen found in surface water throughout the U.S. Although filtration removes C*ryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of C*ryptosporidium *may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection.* Cryptosporidium *must be ingested to cause disease, and it may be spread through means other than drinking water.* |

### Radon

If your system has performed monitoring that indicates the presence of radon in its finished water, include in your CCR:

* The results of monitoring (the analytical values reported by the laboratory);
* An explanation of the significance of the results. Tell customers if they need to be concerned by the information that the CCR provides. The following shows an example of explanation that can be used for this purpose.

|  |
| --- |
| ***EXAMPLE*** *– Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call your State radon program (1-800-745-7236), the U.S. EPA Safe Drinking Water Hotline (1-800-426-4791), or the National Safety Council Radon Hotline (1‑800-767-7236).* |

### Other contaminants

If your system has performed voluntary monitoring that indicates the presence of non-regulated contaminants in the finished water, we strongly encourage you to report any results that may indicate a health concern. Public knowledge of potential problems is in the interest of you and your customers. We consider any detection above a proposed MCL, California NL, or U.S. EPA health advisory level to indicate concern. Call the Safe Drinking Water Hotline (1‑800-426-4791) or visit U.S. EPA’s website (https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables) for this information. California NLs are shown in Appendix D and available at <http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.shtml>. For these contaminants, the State Board recommends that the CCR contain:

* The results of monitoring;
* An explanation of the significance of the results, noting the existence of the proposed MCL, California NL (see Appendix D for available optional health effects language), or U.S. EPA health advisory (https://www.epa.gov/dwstandardsregulations/2018-drinking-water-standards-and-advisory-tables).

## Item 6: Compliance with other drinking water regulations

### Other than the Ground Water Rule – Special Notice Requirements

If your water system violated one of the following requirements during the year covered by your CCR, the report must describe the violation(s). Just as you must explain the potential health effects of any MCL violation, you must provide a clear and readily understandable explanation of any other violation, potential adverse health effects (if any), and the steps the system has taken to correct the violation.

 Treatment techniques (TT; must include length of violation)

(1) Filtration and disinfection requirements (SWTR, IESWTR, and LT1ESWTR). If you violated the TT discussed in Part IV, Item 4, include the health effects language for *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, and *Cryptosporidium* listed in Appendix A.

1. Filter Backwash Recycle Rule (FBRR; if using conventional or direct filtration). If you violated the TT discussed in Part IV, Item 4, include the health effects language for *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, and *Cryptosporidium* listed in Appendix A.
2. Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). If you violated the TT discussed in Part IV, Item 4, see the example in Appendix F.
3. Ground Water Rule (GWR). If you violated the TT discussed in Part IV, Item 4, see the example in Appendix F.
4. Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 D/DBPR; if using conventional filtration). If you violated the TT discussed in Part IV, Item 4, include the health effects language for control of DBP precursors (TOC) listed in Appendix A.
5. Lead and copper control requirements. If you violated the TT discussed in Part IV, Item 4, must include the health effects language for lead or copper listed in Appendix A.
6. Acrylamide and Epichlorohydrin. If you violated the TT discussed in Part IV, Item 4, include the health effects language for acrylamide or epichlorohydrin listed in Appendix A.
7. Federal Revised Total Coliform Rule (RTCR). For CCR reporting, the below applies only to CWSs. NTNCWSs are encouraged to include TT violations in the CCR to keep their customers informed.
   1. A TT violation occurs when a water system exceeds a TT trigger specified in 40 CFR section 141.859(a) and then fails to conduct the required Level 1 or Level 2 Assessment or corrective actions within the timeframe specified in 40 CFR section 141.859(b) and (c). If you violated this TT, which was discussed in Part IV, Item 4, include the health effects language for total coliform bacteria TT or *E. coli* TT listed in Appendix A, as appropriate. See pages 27 to 29 for a description of a total coliform bacteria TT and *E. coli* TT violation, respectively.
   2. A TT violation occurs when a seasonal system[[3]](#footnote-3) fails to complete a State Board-approved start-up procedure prior to serving water to the public. If you violated this TT, which was discussed in Part IV, Item 4, provide a clear and readily understandable explanation of the violation, potential adverse health effects (if any), and the steps the system has taken to correct the violation.

Note: The State Board recommends that systems include TT violations listed here in a table adjacent to the main detected contaminant table. See Part IV, Item 4 for more discussion on presenting TT violations.

 Monitoring and reporting of compliance data. If your system failed to take the sample on time (*i.e.*, failure to monitor), the CCR should say “health effects unknown”. If your system took the samples accurately and on-time, but mailed the results late, you do not need to discuss health effects.

 Recordkeeping requirements.

 Special monitoring requirements under California Code of Regulations, Title 22, sections 64449(b)(2) and (g).

 Terms of a variance, an exemption, or an administrative or judicial order.

### Ground Water Rule – Special Notice Requirements

The GWR requires CWSs and NTNCWSs using groundwater to provide special notice in their CCR for the following two situations:

#### Special Notice for Uncorrected Significant Deficiencies

If you are a groundwater system that receives notice from the State Board of a significant deficiency, you must inform your customers of any significant deficiencies that are not corrected by December 31st of the year covered by your CCR. The CCR must include the following information:

* The nature of the significant deficiency and the date it was identified by the State Board;
* The State Board-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed.

You must continue to inform your customers annually until the State Board determines the significant deficiency is corrected.

Note: The State Board may also require you to include in your CCR significant deficiencies that were corrected by the end of the calendar year. If you are directed by the State Board to do this, you must inform your customers of the significant deficiency, how it was corrected, and the date it was corrected in that year’s CCR.

#### Special Notice for a Fecal Indicator-Positive Groundwater Source Sample

If you are a groundwater system that receives notice from a laboratory of a fecal indicator-positive groundwater source sample and the sample is not invalidated by the State Board, you must inform your customers in the next CCR. The CCR must include the following information for a fecal indicator-positive groundwater source sample:

* The source of the fecal contamination (if it is known) and the date(s) of the fecal indicator-positive source sample;
* If the fecal contamination has been addressed as prescribed by the requirements of the GWR [California Code of Regulations, section 64430, which incorporates by reference the federal GWR, *i.e.*, 40 CFR section 141.403(a)] and the date the contamination was addressed;
* For fecal contamination that has not been addressed, the State Board-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed;
* The health effects language for fecal indicators (*E. coli*, enterococci or coliphage), as provided in Appendix A.

Since fecal indicator-positive groundwater source samples must be included in the detected contaminant table, this special notice language can be included below the table or elsewhere in the report. Appendix F contains an example on how to present fecal indicator-positive groundwater source samples and the special notice text in a CCR.

You must continue to inform customers annually until the fecal contamination in the groundwater source is addressed as prescribed by the requirements of the GWR.

### Federal Revised Total Coliform Rule – Language for Level 1 and Level 2 Assessment Requirements and Treatment Technique Violations, *E. coli* MCL Violation, and *E. coli* Detection

#### Level 1 and Level 2 Assessment Requirements and Treatment Technique Violations

Consistent with 40 CFR section 141.153(h)(7), CWSs that had to comply with a Level 1 or Level 2 Assessment requirement in 2018 are required to include information on the number of assessments required and completed, corrective actions required and completed, reasons for conducting assessment and corrective actions, and whether the water system failed to complete any required assessments or corrective actions. A NTNCWS is encouraged to include the information in the CCR to keep their customers informed.

Language to Use When a Level 1 or Level 2 Assessment Requirement was not Due to an *E. coli* MCL Violation

If a water system was required to comply with a Level 1 or Level 2 Assessment requirement that was not due to an *E. coli* MCL violation, the CCR must include the following language, filling in the blanks accordingly [40 CFR section 141.153(h)(7)(i)].

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| --- |
| *Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments*.  The water system shall include the following statements, as appropriate:  *During the past year we were required to conduct* [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] *Level 1 Assessment(s).* [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] *Level 1 Assessment(s) were completed. In addition, we were required to take* [INSERT NUMBER OF CORRECTIVE ACTIONS] *corrective actions and we completed* [INSERT NUMBER OF CORRECTIVE ACTIONS] *of these actions.*  *During the past year* [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] *Level 2 Assessments were required to be completed for our water system.*  [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] *Level 2 Assessments were completed. In addition, we were required to take* [INSERT NUMBER OF CORRECTIVE ACTIONS] *corrective actions and we completed* [INSERT NUMBER OF CORRECTIVE ACTIONS] *of these actions.* |

If a water system failed to complete all the required assessments or correct all identified sanitary defects, the water system is in violation of the total coliform bacteria TT requirementand must also include one or both of the below noted statements, as appropriate [40 CFR section 141.153(h)(7)(i)(D)].

|  |
| --- |
| *During the past year we failed to conduct all of the required assessment(s).*  *During the past year we failed to correct all identified defects that were found during the assessment.* |

Language to Use When a Level 2 Assessment Requirement was Due to an *E. coli* MCL Violation

If a water system was required to comply with a Level 2 Assessment requirement that was due to an *E. coli* MCL violation, the CCR must include the following language, filling in the blanks accordingly [40 CFR section 141.153(h)(7)(ii)].

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| --- |
| E. coli *are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems. We found* E. coli *bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) identify problems and to correct any problems that were found during these assessments*.  *We were required to complete a Level 2 Assessment because we found* E. coli *in our water system. In addition, we were required to take* [INSERT NUMBER OF CORRECTIVE ACTIONS] *corrective actions and we completed* [INSERT NUMBER OF CORRECTIVE ACTIONS] *of these actions.* |

If a water system failed to complete all the required assessments or correct all identified sanitary defects, the water system is in violation of the *E. coli* TT requirement and must also include one or both of the below noted statements, as appropriate [40 CFR section 141.153(h)(7)(ii)(C)].

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| --- |
| *We failed to conduct the required assessment.*  *We failed to correct all sanitary defects that were identified during the assessment.*[[4]](#footnote-4) |

#### *E. coli* MCL Violation

If a water system detects *E. coli* and has violated the *E. coli* MCL, the water system shall include the following statements, as appropriate [40 CFR section 141.153(h)(7)(iii)].

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| --- |
| We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.  We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.  We failed to take all required repeat samples following an *E. coli*-positive routine sample.  We failed to test for *E. coli* when any repeat sample tests positive for total coliform. |

#### *E. coli* Detection

If *E. coli* was detected and the *E. coli* MCL was not violated, the water system may include a statement that explains that although *E. coli* was detected, the water system is not in violation of the *E. coli* MCL [40 CFR section 141.153(h)(7)(iv)].

## Item 7: Variances and exemptions

If your system operated under a variance or exemption at any time during the year covered by the CCR, include an explanation of the reasons for the variance or exemption, the date that it was issued, why it was granted, when it is up for renewal, and a status report on what the system is doing to remedy the problem (*e.g.*, install treatment, find alternative sources of water, etc.) or otherwise comply with the terms and schedules of the variance or exemption. Also, tell your customers how they may participate in the review or renewal of the variance or exemption.

## Item 8: Educational information

### For all CCRs

Every CCR must contain certain educational information, prominently displayed somewhere in the report.

Your CCR must contain basic information about drinking water contaminants. Use the following mandatory language.

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| *The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.*  *Contaminants that may be present in source water include:*   * *Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.* * *Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.* * *Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.* * *Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.* * *Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.*   *In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board*[[5]](#footnote-5) *regulations also establish limits for contaminants in bottled water that provide the same protection for public health.* |

The following mandatory statement is a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water.

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| --- |
| *Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA’s Safe Drinking Water Hotline (1-800-426-4791).* |

The next mandatory statement informs customers that some people may be more vulnerable to contaminants in drinking water than the general population and encourages those who may be particularly at risk from infection to seek advice from their health care provider.

|  |
| --- |
| *Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by* Cryptosporidium *and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).* |

### Special requirements for nitrate, arsenic, and lead

You must include in your CCR the relevant special educational statement for nitrate, arsenic, and lead in the specified situations. You may include additional information, either before or after the required statement.

* **Nitrate** – Systems with nitrate above 5 mg/L as nitrogen (50 percent of the MCL), but below 10 mg/L as nitrogen (the MCL), must include the following statement:

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| *Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant’s blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.* |

If a utility cannot demonstrate to the State Board with at least five years of the most current monitoring data that its nitrate levels are stable, it must also add the following language to the preceding statement on nitrate:

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| *Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity.* |

* **Arsenic** – Systems with arsenic above 5 µg/L (50 percent of the MCL), but below or equal to 10 µg/L (the MCL) must include the following statement:

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| --- |
| *While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.* |

**Lead[[6]](#footnote-6)** – Consistent with 40 CFR section 141.154(d)(1), every CCR must include the lead-specific language shown below. A water system may provide its own educational statement, but only after consulting with the State Board.

|  |
| --- |
| *If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [NAME OF UTILITY] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. [*Optional: *If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants.] If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at* [*http://www.epa.gov/lead*](http://www.epa.gov/lead)*.* |

Consistent with the California Code of Regulations, section 64482(c), systems with lead above 15 ppb (the regulatory AL) in more than 5%, and up to and including 10%, of sites sampled (or if your system samples fewer than 20 sites and has even one sample above the AL) must also include the following statement:

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| *Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home’s plumbing. If you are concerned about elevated lead levels in your home’s water, you may wish to have your water tested and/or flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the U.S. EPA Safe Drinking Water Hotline (1-800-426-4791).* |

### Other educational information

You are not limited to providing only the required information in your report. You may want to consider including:

* An explanation of (or include a diagram of) your system’s treatment processes;

Note: Although the CCR regulations do not require you to provide treatment information in your CCR, the State Board strongly recommends that you use the CCR as an opportunity to inform your consumers about the treatment processes applied to their water, particularly fluoridation if it is used. Even though there is a fluoridation regulation that requires you to inform your consumers when fluoridation is initiated, or taken off line for an extended period, it is quite likely that many consumers are unaware that fluoride is being added or being received from another water system. This information could potentially affect decisions your consumers make regarding fluoride supplements and treatments. You may want to provide the address for the State Board’s fluoridation website, where consumers may obtain more information about fluoridation, oral health, and current issues (<http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml>).

* Source water protection tips (refer to Appendix I for example language regarding source water protection tips);
* Water and energy conservation tips (refer to Appendix I for example language regarding water conservation tips);
* The cost of making the water safe to drink including the cost of sustaining the infrastructure;
* Efforts your system has made to promote “green infrastructure” (*e.g.*, stormwater pollution prevention measures);
* A statement from the mayor or general manager;
* Information to educate customers about taste and odor issues, affiliations with programs such as the Partnership for Safe Water, opportunities for public participation, etc.

You may want to provide the address for U.S. EPA’s drinking water website (<https://www.epa.gov/ground-water-and-drinking-water>). The only limitation on this information is that it must not interfere with the educational purpose of the CCR.

# V. What should the CCR look like?

You do not need a fancy computer or a graphic designer to produce a CCR that is easy to read and inviting to your customers. The best way to design your CCR is to spend some time looking at other CCRs. See what catches your eye and copy it. A few things to consider:

* Limit wordiness – write short sentences and keep your paragraphs short as well.
* Do not make your text size too small. You might want to squeeze a few extra sentences in your CCR, but if you add too much, people might ignore the entire report.
* Give a draft of your CCR to relatives or friends who are not drinking water experts and ask them if it makes sense. Ask customers for their comments when you publish the CCR.
* Do not distract from your main message with graphics and/or pictures that do not complement your message.
* Be as simple, truthful, and straight forward as possible. Avoid acronyms, initials, and jargon.
* Consider printing the CCR on recycled paper and taking other steps to make the CCR “environmentally friendly”. If you hope to get your customers involved in protecting source water, set a good example for them.

# VI. How must the CCR be distributed?

## General

You must mail or deliver a copy of your CCR to each of your customers, and make a good faith effort to get CCRs to non-bill-paying consumers. Deliver your CCR annually by July 1 of each year. You may include your CCR with water bills, if feasible, or you may send it as a separate mailer. Sending your CCR as a separate mailer will likely be more effective, and you will reach renters who may not receive water fills directly. You must also make your CCR available to the public upon request.

Systems that serve 100,000 or more people must post their CCRs on a publicly-accessible site on the Internet. We encourage other systems to post their CCRs as well. Many local governments have sites where you can post your CCR, even if your system itself does not have a website. U.S. EPA provides a mechanism that allows systems to link their CCR to the U.S. EPA website (<https://www.epa.gov/ccr/how-water-systems-comply-ccr-requirements>).

## Consumers not receiving water bills

It is in your system’s interest to spread the word about the quality of its water. Since many consumers of your water may not receive bills (people such as apartment renters or workers), you must make “good faith” efforts to reach non-bill paying consumers. A “good faith” effort means selecting the most appropriate method(s) to reach those consumers from a menu of options that the State Board recommends. Those options include but are not limited to:

* Posting the CCR on the Internet using websites, email notifications, Podcasts, blogs, or Tweets;
* Mailing the CCR to postal patrons in metropolitan areas; mailing to all postal patrons is recommended;
* Advertising the availability of the CCR in news media (*e.g.*, newspapers, TV, and radio);
* Publishing the complete CCR in a local newspaper;
* Posting the CCR in public places such as cafeterias, lunch rooms, and lobbies of public buildings, libraries, churches, and schools;
* Delivering multiple copies of the CCRs for distribution by single-billed customers such as apartment buildings or large private employers;
* Delivering the CCR to community organizations.

## State and local agencies and media outlets

Send a copy to the State Board or LPA, depending on who oversees your regulatory compliance, when you mail it to customers. Within three months of the CCR’s due date, submit to the State Board a certification (see Appendix G for a sample form) that you distributed the CCR, and that its information is correct and consistent with the compliance monitoring data previously submitted to the State Board. In addition, if your system is investor-owned, send a copy of the CCR to the California Public Utilities Commission by July 1. We also encourage you to send copies to local TV and radio stations and newspapers.

## Electronic delivery

The State Board allows electronic delivery of the CCR. Suggested delivery methods, examples, and the certification form to use are available on the State Board’s website (<http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/CCR.shtml>).

# VII. How long must the CCR be kept?

Keep your report on file for no less than three years.

# APPENDIX A: Regulated Contaminants with Primary Drinking Water Standards

|  |  |  |
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| Key |  |  |
| AL = Regulatory Action Level | MFL = million fibers per liter | ppm = parts per million, or milligrams per liter (mg/L) |
| MCL = Maximum Contaminant Level | NTU = Nephelometric Turbidity Units | ppb = parts per billion, or micrograms per liter (µg/L) |
| MCLG = Maximum Contaminant Level Goal | N/A = not applicable | ppt = parts per trillion, or nanograms per liter (ng/L) |
| MRDL = Maximum Residual Disinfectant Level | pCi/L = picocuries per liter (a measure of radioactivity) | ppq = parts per quadrillion, or picograms per liter (pg/L) |
| MRDLG = Maximum Residual Disinfectant Level Goal | mrem/year = millirems per year (a measure of radiation absorbed by the body) |  |
| PHG = Public Health Goal |  |
| TT = Treatment Technique |  |  |

**Microbiological Contaminants**

| **Contaminant (CCR units)** | **Traditional MCL** | **To convert for CCR, multiply by** | **MCL in CCR units** | **PHG**  **(MCLG) in CCR units** | **Major Sources in Drinking Water** | **Health Effects Language** |
| --- | --- | --- | --- | --- | --- | --- |
| Total Coliform Bacteria (state Total Coliform Rule) | **MCL: Systems that collect ≥40 samples/month:** 5.0% of monthly samples are positive;  **Systems that collect <40 samples/month:** 1 positive monthly sample | | | (0) | Naturally present in the environment | Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. |
| Fecal Coliform and *E. coli* (state Total Coliform Rule) | MCL: A routine sample and a repeat sam­ple are total coliform positive, and one of these is also fecal coliform or *E. coli* positive | | | (0) | Human and animal fecal waste | Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. |
| Total Coliform Bacteria  (federal Revised Total Coliform Rule) | TT | N/A | TT | N/A | Naturally present in the environment | Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments. |
| *E. coli*  (federal Revised Total Coliform Rule) | Footnote[[7]](#footnote-7) | N/A | Footnote5 | (0) | Human and animal fecal waste | *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems.  *For the consumer confidence report, if a water system detects* E. coli *and has violated the* E. coli *MCL, the water system shall include the following statements, as appropriate.*   * We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample. * We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample. * We failed to take all required repeat samples following an *E. coli*-positive routine sample. * We failed to test for *E. coli* when any repeat sample tests positive for total coliform.   *If the E. coli MCL was not violated, the water system may include a statement that explains that although* E. coli *was detected, the water system is not in violation of the* E. coli *MCL*. |
| *E. coli*  (federal Revised Total Coliform Rule) | TT | N/A | TT | N/A | Human and animal fecal waste | *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely-compromised immune systems. |
| Fecal Indicator *E. coli* (Ground Water Rule) | 0 | N/A | 0 | (0) | Human and animal fecal waste | Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. |
| Fecal Indicators (enterococci or coliphage) (Ground Water Rule) | TT | N/A | TT | N/A | Human and animal fecal waste | Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. |
| Turbidity | TT | N/A | TT | N/A | Soil runoff | Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. |
| *Giardia lamblia,* Viruses, Heterotrophic Plate Count Bacteria, *Legionella, Cryptosporidium* | Surface water treatment = TT | | | HPC = N/A; Others = (0) | Naturally present in the environment | Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. |

**Radioactive Contaminants**

| **Contaminant (CCR units)** | **Traditional MCL** | **To convert for CCR, multiply by** | **MCL in CCR units** | **PHG**  **(MCLG) in CCR units** | **Major Sources in Drinking Water** | **Health Effects Language** |
| --- | --- | --- | --- | --- | --- | --- |
| Gross Beta Particle Activity (pCi/L) | 50[[8]](#footnote-8) | N/A | 50 | (0) | Decay of natural and man-made deposits | Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer. |
| Strontium-90 (pCi/L) | 8 | N/A | 8 | 0.35 | Decay of natural and man-made deposits | Some people who drink water containing strontium-90 in excess of the MCL over many years may have an increased risk of getting cancer. |
| Tritium (pCi/L) | 20,000 | N/A | 20,000 | 400 | Decay of natural and man-made deposits | Some people who drink water containing tritium in excess of the MCL over many years may have an increased risk of getting cancer. |
| Gross Alpha Particle Activity (pCi/L) | 15 | N/A | 15 | (0) | Erosion of natural deposits | Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer. |
| Combined Radium (pCi/L) | 5 | N/A | 5 | (0)[[9]](#footnote-9) | Erosion of natural deposits | Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer. |
| Total Radium (pCi/L)  (for nontransient-noncommunity water systems) | 5 | N/A | 5 | N/A | Erosion of natural deposits | Some people who drink water containing radium 223, 224, or 226 in excess of the MCL over many years may have an increased risk of getting cancer. |
| Uranium (pCi/L) | 20 | N/A | 20 | 0.43 | Erosion of natural deposits | Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer. |

**Inorganic Contaminants**

| **Contaminant (CCR units)** | **Traditional MCL in mg/L** | **To convert for CCR, multiply by** | **MCL in CCR units** | **PHG**  **(MCLG) in CCR units** | **Major Sources in Drinking Water** | **Health Effects Language** |
| --- | --- | --- | --- | --- | --- | --- |
| Aluminum (mg/L) | 1 | - | 1 | 0.6 | Erosion of natural deposits; residue from some surface water treatment processes | Some people who drink water containing aluminum in excess of the MCL over many years may experience short-term gastrointestinal tract effects. |
| Antimony (µg/L) | 0.006 | 1,000 | 6 | 1 | Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder | Some people who drink water containing antimony in excess of the MCL over many years may experience increases in blood cholesterol and decreases in blood sugar. |
| Arsenic (µg/L) | 0.010 | 1,000 | 10 | 0.004 | Erosion of natural deposits; runoff from orchards; glass and electronics production wastes | Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer. |
| Asbestos (MFL) | 7 MFL | - | 7 | 7 | Internal corrosion of asbestos cement water mains; erosion of natural deposits | Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps. |
| Barium (mg/L) | 1 | - | 1 | 2 | Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits | Some people who drink water containing barium in excess of the MCL over many years may experience an increase in blood pressure. |
| Beryllium (µg/L) | 0.004 | 1,000 | 4 | 1 | Discharge from metal refineries, coal-burning factories, and electrical, aerospace, and defense industries | Some people who drink water containing beryllium in excess of the MCL over many years may develop intestinal lesions. |
| Cadmium (µg/L) | 0.005 | 1,000 | 5 | 0.04 | Internal corrosion of galvanized pipes; erosion of natural deposits; discharge from electroplating and industrial chemical factories, and metal refineries; runoff from waste batteries and paints | Some people who drink water containing cadmium in excess of the MCL over many years may experience kidney damage. |
| Chromium [Total] (µg/L) | 0.05 | 1,000 | 50 | (100) | Discharge from steel and pulp mills and chrome plating; erosion of natural deposits | Some people who use water containing chromium in excess of the MCL over many years may experience allergic dermatitis. |
| Copper (mg/L) | AL = 1.3 | - | AL = 1.3 | 0.3 | Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives | Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years may suffer liver or kidney damage. People with Wilson’s Disease should consult their personal doctor. |
| Cyanide (µg/L) | 0.15 | 1,000 | 150 | 150 | Discharge from steel/metal, plastic and fertilizer factories | Some people who drink water containing cyanide in excess of the MCL over many years may experience nerve damage or thyroid problems. |
| Fluoride (mg/L) | 2.0 | - | 2.0 | 1 | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories | Some people who drink water containing fluoride in excess of the federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the state MCL of 2 mg/L may get mottled teeth. |
| Lead (µg/L) | AL = 0.015 | 1,000 | AL = 15 | 0.2 | Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits | Infants and children who drink water containing lead in excess of the action level may experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities. Adults who drink this water over many years may develop kidney problems or high blood pressure. |
| Mercury [Inorganic] (µg/L) | 0.002 | 1,000 | 2 | 1.2 | Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and cropland | Some people who drink water containing mercury in excess of the MCL over many years may experience mental disturbances, or impaired physical coordination, speech and hearing. |
| Nickel (µg/L) | 0.1 | 1,000 | 100 | 12 | Erosion of natural deposits; discharge from metal factories | Some people who drink water containing nickel in excess of the MCL over many years may experience liver and heart effects. |
| Nitrate (mg/L) | 10 (as N) | - | 10 (as N) | 10 (as N) | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits | Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant’s blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women. |
| Nitrite (mg/L) | 1 (as N) | - | 1 (as N) | 1 (as N) | Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits | Infants below the age of six months who drink water containing nitrite in excess of the MCL may quickly become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blueness of the skin. |
| Perchlorate (µg/L) | 0.006 | 1,000 | 6 | 1 | Perchlorate is an inorganic chemical used in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries. It usually gets into drinking water as a result of environmental contamination from historic aerospace or other industrial operations that used or use, store, or dispose of perchlorate and its salts. | Perchlorate has been shown to interfere with uptake of iodide by the thyroid gland, and to thereby reduce the production of thyroid hormones, leading to adverse effects associated with inadequate hormone levels. Thyroid hormones are needed for normal prenatal growth and development of the fetus, as well as for normal growth and development in the infant and child. In adults, thyroid hormones are needed for normal metabolism and mental function. |
| Selenium (µg/L) | 0.05 | 1,000 | 50 | 30 | Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots (feed additive) | Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years may experience hair or fingernail losses, numbness in fingers or toes, or circulation system problems. |
| Thallium (µg/L) | 0.002 | 1,000 | 2 | 0.1 | Leaching from ore-processing sites; discharge from electronics, glass, and drug factories | Some people who drink water containing thallium in excess of the MCL over many years may experience hair loss, changes in their blood, or kidney, intestinal, or liver problems. |

**Synthetic Organic Contaminants including Pesticides and Herbicides**

| **Contaminant (CCR units)** | **Traditional MCL in mg/L** | **To convert for CCR, multiply by** | **MCL in CCR units** | | **PHG**  **(MCLG) in CCR units** | | | **Major Sources in Drinking Water** | **Health Effects Language** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2,4-D (µg/L) | 0.07 | 1,000 | | 70 | | 20 | Runoff from herbicide used on row crops, range land, lawns, and aquatic weeds | | Some people who use water containing the weed killer 2,4-D in excess of the MCL over many years may experience kidney, liver, or adrenal gland problems. |
| 2,4,5-TP [Silvex] (µg/L) | 0.05 | 1,000 | | 50 | | 3 | Residue of banned herbicide | | Some people who drink water containing Silvex in excess of the MCL over many years may experience liver problems. |
| Acrylamide | TT | - | | TT | | (0) | Added to water during sewage/wastewater treatment | | Some people who drink water containing high levels of acrylamide over a long period of time may experience nervous system or blood problems, and may have an increased risk of getting cancer. |
| Alachlor (µg/L) | 0.002 | 1,000 | | 2 | | 4 | Runoff from herbicide used on row crops | | Some people who use water containing alachlor in excess of the MCL over many years may experience eye, liver, kidney, or spleen problems, or experience anemia, and may have an increased risk of getting cancer. |
| Atrazine (µg/L) | 0.001 | 1,000 | | 1 | | 0.15 | Runoff from herbicide used on row crops and along railroad and highway right-of-ways | | Some people who use water containing atrazine in excess of the MCL over many years may experience cardiovascular system problems or reproductive difficulties. |
| Bentazon (µg/L) | 0.018 | 1,000 | | 18 | | 200 | Runoff/leaching from herbicide used on beans, peppers, corn, peanuts, rice, and ornamental grasses | | Some people who drink water containing bentazon in excess of the MCL over many years may experience prostate and gastrointestinal effects. |
| Benzo(a)pyrene [PAH] (ng/L) | 0.0002 | 1,000,000 | | 200 | | 7 | Leaching from linings of water storage tanks and distribution mains | | Some people who use water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer. |
| Carbofuran (µg/L) | 0.018 | 1,000 | | 18 | | 0.7 | Leaching of soil fumigant used on rice and alfalfa, and grape vineyards | | Some people who use water containing carbofuran in excess of the MCL over many years may experience problems with their blood, or nervous or reproductive system problems. |
| Chlordane (ng/L) | 0.0001 | 1,000,000 | | 100 | | 30 | Residue of banned insecticide | | Some people who use water containing chlordane in excess of the MCL over many years may experience liver or nervous system problems, and may have an increased risk of getting cancer. |
| Dalapon (µg/L) | 0.2 | 1,000 | | 200 | | 790 | Runoff from herbicide used on rights-of-way, and crops and landscape maintenance | | Some people who drink water containing dalapon in excess of the MCL over many years may experience minor kidney changes. |
| Di(2-ethylhexyl) Adipate (µg/L) | 0.4 | 1,000 | | 400 | | 200 | Discharge from chemical factories | | Some people who drink water containing di(2-ethylhexyl) adipate in excess of the MCL over many years may experience weight loss, liver enlargement, or possible reproductive difficulties. |
| Di(2-ethylhexyl) Phthalate (µg/L) | 0.004 | 1,000 | | 4 | | 12 | Discharge from rubber and chemical factories; inert ingredient in pesticides | | Some people who use water containing di(2-ethylhexyl) phthalate well in excess of the MCL over many years may experience liver problems or reproductive difficulties, and may have an increased risk of getting cancer. |
| Dibromochloropropane [DBCP] (ng/L) | 0.0002 | 1,000,000 | | 200 | | 1.7 | Banned nematocide that may still be present in soils due to runoff/leaching from former use on soybeans, cotton, vineyards, tomatoes, and tree fruit | | Some people who use water containing DBCP in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer. |
| Dinoseb (µg/L) | 0.007 | 1,000 | | 7 | | 14 | Runoff from herbicide used on soybeans, vegetables, and fruits | | Some people who drink water containing dinoseb in excess of the MCL over many years may experience reproductive difficulties. |
| Dioxin [2,3,7,8-TCDD] (pg/L) | 0.00000003 | 1,000,000,000 | | 30 | | 0.05 | Emissions from waste incineration and other combustion; discharge from chemical factories | | Some people who use water containing dioxin in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer. |
| Diquat (µg/L) | 0.02 | 1,000 | | 20 | | 6 | Runoff from herbicide use for terrestrial and aquatic weeds | | Some people who drink water containing diquat in excess of the MCL over many years may get cataracts. |
| Endothall (µg/L) | 0.1 | 1,000 | | 100 | | 94 | Runoff from herbicide use for terrestrial and aquatic weeds; defoliant | | Some people who drink water containing endothall in excess of the MCL over many years may experience stomach or intestinal problems. |
| Endrin (µg/L) | 0.002 | 1,000 | | 2 | | 0.3 | Residue of banned insecticide and rodenticide | | Some people who drink water containing endrin in excess of the MCL over many years may experience liver problems. |
| Epichlorohydrin | TT | - | | TT | | (0) | Discharge from industrial chemical factories; impurity of some water treatment chemicals | | Some people who drink water containing high levels of epichlorohydrin over a long period of time may experience stomach problems, and may have an increased risk of getting cancer. |
| Ethylene Dibromide [EDB] (ng/L) | 0.00005 | 1,000,000 | | 50 | | 10 | Discharge from petroleum refineries; underground gas tank leaks; banned nematocide that may still be present in soils due to runoff and leaching from grain and fruit crops | | Some people who use water containing ethylene dibromide in excess of the MCL over many years may experience liver, stomach, reproductive system, or kidney problems, and may have an increased risk of getting cancer. |
| Glyphosate (µg/L) | 0.7 | 1,000 | | 700 | | 900 | Runoff from herbicide use | | Some people who drink water containing glyphosate in excess of the MCL over many years may experience kidneys problems or reproductive difficulties. |
| Heptachlor (ng/L) | 0.00001 | 1,000,000 | | 10 | | 8 | Residue of banned insecticide | | Some people who use water containing heptachlor in excess of the MCL over many years may experience liver damage and may have an increased risk of getting cancer. |
| Heptachlor Epoxide (ng/L) | 0.00001 | 1,000,000 | | 10 | | 6 | Breakdown of heptachlor | | Some people who use water containing heptachlor epoxide in excess of the MCL over many years may experience liver damage, and may have an increased risk of getting cancer. |
| Hexachlorobenzene (µg/L) | 0.001 | 1,000 | | 1 | | 0.03 | Discharge from metal refineries and agricultural chemical factories; byproduct of chlorination reactions in wastewater | | Some people who drink water containing hexachlorobenzene in excess of the MCL over many years may experience liver or kidney problems, or adverse reproductive effects, and may have an increased risk of getting cancer. |
| Hexachlorocyclo-pentadiene (µg/L) | 0.05 | 1,000 | | 50 | | 2 | Discharge from chemical factories | | Some people who use water containing hexachlorocyclopentadiene in excess of the MCL over many years may experience kidney or stomach problems. |
| Lindane (ng/L) | 0.0002 | 1,000,000 | | 200 | | 32 | Runoff/leaching from insecticide used on cattle, lumber, and gardens | | Some people who drink water containing lindane in excess of the MCL over many years may experience kidney or liver problems. |
| Methoxychlor (µg/L) | 0.03 | 1,000 | | 30 | | 0.09 | Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock | | Some people who drink water containing methoxychlor in excess of the MCL over many years may experience reproductive difficulties. |
| Molinate [Ordram] (µg/L) | 0.02 | 1,000 | | 20 | | 1 | Runoff/leaching from herbicide used on rice | | Some people who use water containing molinate in excess of the MCL over many years may experience reproductive effects. |
| Oxamyl [Vydate] (µg/L) | 0.05 | 1,000 | | 50 | | 26 | Runoff/leaching from insecticide used on field crops, fruits and ornamentals, especially apples, potatoes, and tomatoes | | Some people who drink water containing oxamyl in excess of the MCL over many years may experience slight nervous system effects. |
| PCBs [Polychlorinated Biphenyls] (ng/L) | 0.0005 | 1,000,000 | | 500 | | 90 | Runoff from landfills; discharge of waste chemicals | | Some people who drink water containing PCBs in excess of the MCL over many years may experience changes in their skin, thymus gland problems, immune deficiencies, or repro­ductive or nervous system difficulties, and may have an increased risk of getting cancer. |
| Pentachlorophenol (µg/L) | 0.001 | 1,000 | | 1 | | 0.3 | Discharge from wood preserving factories, cotton and other insecticidal/herbicidal uses | | Some people who use water containing pentachlorophenol in excess of the MCL over many years may experience liver or kidney problems, and may have an increased risk of getting cancer. |
| Picloram (µg/L) | 0.5 | 1,000 | | 500 | | 166 | Herbicide runoff | | Some people who drink water containing picloram in excess of the MCL over many years may experience liver problems. |
| Simazine (µg/L) | 0.004 | 1,000 | | 4 | | 4 | Herbicide runoff | | Some people who use water containing simazine in excess of the MCL over many years may experience blood problems. |
| Thiobencarb (µg/L) | 0.07 | 1,000 | | 70 | | 42 | Runoff/leaching from herbicide used on rice | | Some people who use water containing thiobencarb in excess of the MCL over many years may experience body weight and blood effects. |
| Toxaphene (µg/L) | 0.003 | 1,000 | | 3 | | 0.03 | Runoff/leaching from insecticide used on cotton and cattle | | Some people who use water containing toxaphene in excess of the MCL over many years may experience kidney, liver, or thyroid problems, and may have an increased risk of getting cancer. |
| 1,2,3-Trichloropropane [TCP] (µg/L) | 0.000005 | 1,000 | | 0.005 | | 0.0007 | Discharge from industrial and agricultural chemical factories; leaching from hazardous waste sites; used as cleaning and maintenance solvent, paint and varnish remover, and cleaning and degreasing agent; byproduct during the production of other compounds and pesticides. | | Some people who drink water containing 1,2,3-trichloropropane in excess of the MCL over many years may have an increased risk of getting cancer. |

**Volatile Organic Contaminants**

| **Contaminant (CCR units)** | **Traditional MCL in mg/L** | **To convert for CCR, multiply by** | **MCL in CCR units** | **PHG**  **(MCLG) in CCR units** | **Major Sources in Drinking Water** | **Health Effects Language** |
| --- | --- | --- | --- | --- | --- | --- |
| Benzene (µg/L) | 0.001 | 1,000 | 1 | 0.15 | Discharge from plastics, dyes and nylon factories; leaching from gas storage tanks and landfills | Some people who use water containing benzene in excess of the MCL over many years may experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer. |
| Carbon Tetrachloride (ng/L) | 0.0005 | 1,000,000 | 500 | 100 | Discharge from chemical plants and other industrial activities | Some people who use water containing carbon tetrachloride in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer. |
| 1,2-Dichlorobenzene (µg/L) | 0.6 | 1,000 | 600 | 600 | Discharge from industrial chemical factories | Some people who drink water containing 1,2-dichlorobenzene in excess of the MCL over many years may experience liver, kidney, or circulatory system problems. |
| 1,4-Dichlorobenzene (µg/L) | 0.005 | 1,000 | 5 | 6 | Discharge from industrial chemical factories | Some people who use water containing 1,4-dichlorobenzene in excess of the MCL over many years may experience anemia, liver, kidney, or spleen damage, or changes in their blood. |
| 1,1-Dichloroethane (µg/L) | 0.005 | 1,000 | 5 | 3 | Extraction and degreasing solvent; used in manufacture of pharmaceuticals, stone, clay and glass products; fumigant | Some people who use water containing 1,1-dichloroethane in excess of the MCL over many years may experience nervous system or respiratory problems. |
| 1,2-Dichloroethane (ng/L) | 0.0005 | 1,000,000 | 500 | 400 | Discharge from industrial chemical factories | Some people who use water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer. |
| 1,1-Dichloroethylene (µg/L) | 0.006 | 1,000 | 6 | 10 | Discharge from industrial chemical factories | Some people who use water containing 1,1-dichloroethylene in excess of the MCL over many years may experience liver problems. |
| cis-1,2-Dichloroethylene (µg/L) | 0.006 | 1,000 | 6 | 100 | Discharge from industrial chemical factories; major biodegradation byproduct of TCE and PCE groundwater contamination | Some people who use water containing cis-1,2-dichloroethylene in excess of the MCL over many years may experience liver problems. |
| trans-1,2-Dichloroethylene (µg/L) | 0.01 | 1,000 | 10 | 60 | Discharge from industrial chemical factories; minor biodegradation byproduct of TCE and PCE groundwater contamination | Some people who drink water containing trans-1,2-dichloroethylene in excess of the MCL over many years may experience liver problems. |
| Dichloromethane (µg/L) | 0.005 | 1,000 | 5 | 4 | Discharge from pharmaceutical and chemical factories; insecticide | Some people who drink water containing dichloromethane in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer. |
| 1,2-Dichloropropane (µg/L) | 0.005 | 1,000 | 5 | 0.5 | Discharge from industrial chemical factories; primary component of some fumigants | Some people who use water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer. |
| 1,3-Dichloropropene (ng/L) | 0.0005 | 1,000,000 | 500 | 200 | Runoff/leaching from nematocide used on croplands | Some people who use water containing 1,3-dichloropropene in excess of the MCL over many years may have an increased risk of getting cancer. |
| Ethylbenzene (µg/L) | 0.3 | 1,000 | 300 | 300 | Discharge from petroleum refineries; industrial chemical factories | Some people who use water containing ethylbenzene in excess of the MCL over many years may experience liver or kidney problems. |
| Methyl-tert-butyl ether (µg/L) | 0.013 | 1,000 | 13 | 13 | Leaking underground storage tanks; discharge from petroleum and chemical factories | Some people who use water containing methyl-tert-butyl ether in excess of the MCL over many years may have an increased risk of getting cancer. |
| Monochlorobenzene (µg/L) | 0.07 | 1,000 | 70 | 70 | Discharge from industrial and agricultural chemical factories and dry cleaning facilities | Some people who use water containing monochlorobenzene in excess of the MCL over many years may experience liver or kidney problems. |
| Styrene (µg/L) | 0.1 | 1,000 | 100 | 0.5 | Discharge from rubber and plastic factories; leaching from landfills | Some people who drink water containing styrene in excess of the MCL over many years may experience liver, kidney, or circulatory system problems. |
| 1,1,2,2-Tetrachloroethane (µg/L) | 0.001 | 1,000 | 1 | 0.1 | Discharge from industrial and agricultural chemical factories; solvent used in production of TCE, pesticides, varnish and lacquers | Some people who drink water containing 1,1,2,2-tetrachloroethane in excess of the MCL over many years may experience liver or nervous system problems. |
| Tetrachloroethylene (PCE) (µg/L) | 0.005 | 1,000 | 5 | 0.06 | Discharge from factories, dry cleaners, and auto shops (metal degreaser) | Some people who use water containing tetrachloroethylene in excess of the MCL over many years may experience liver problems, and may have an increased risk of getting cancer. |
| 1,2,4-Trichlorobenzene (µg/L) | 0.005 | 1,000 | 5 | 5 | Discharge from textile-finishing factories | Some people who use water containing 1,2,4-trichlorobenzene in excess of the MCL over many years may experience adrenal gland changes. |
| 1,1,1-Trichloroethane (µg/L) | 0.200 | 1,000 | 200 | 1000 | Discharge from metal degreasing sites and other factories; manufacture of food wrappings | Some people who use water containing 1,1,1-trichloroethane in excess of the MCL over many years may experience liver, nervous system, or circulatory system problems. |
| 1,1,2-Trichloroethane (µg/L) | 0.005 | 1,000 | 5 | 0.3 | Discharge from industrial chemical factories | Some people who use water containing 1,1,2-trichloroethane in excess of the MCL over many years may experience liver, kidney or immune system problems. |
| Trichloroethylene [TCE] (µg/L) | 0.005 | 1,000 | 5 | 1.7 | Discharge from metal degreasing sites and other factories | Some people who use water containing trichloroethylene in excess of the MCL over many years may experience liver problems and may have an increased risk of getting cancer. |
| Toluene (µg/L) | 0.15 | 1,000 | 150 | 150 | Discharge from petroleum and chemical factories; underground gas tank leaks | Some people who use water containing toluene in excess of the MCL over many years may experience nervous system, kidney, or liver problems. |
| Trichlorofluoromethane (µg/L) | 0.15 | 1,000 | 150 | 1300 | Discharge from industrial factories; degreasing solvent; propellant and refrigerant | Some people who use water containing trichlorofluoromethane in excess of the MCL over many years may experience liver problems. |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (mg/L) | 1.2 | - | 1.2 | 4 | Discharge from metal degreasing sites and other factories; dry-cleaning solvent; refrigerant | Some people who use water containing 1,1,2-trichloro-1,2,2-trifluoroethane in excess of the MCL over many years may experience liver problems. |
| Vinyl Chloride (ng/L) | 0.0005 | 1,000,000 | 500 | 50 | Leaching from PVC piping; discharge from plastics factories; biodegradation byproduct of TCE and PCE groundwater contamination | Some people who use water containing vinyl chloride in excess of the MCL over many years may have an increased risk of get­ting cancer. |
| Xylenes (mg/L) | 1.750 | - | 1.750 | 1.8 | Discharge from petroleum and chemical factories; fuel solvent | Some people who use water containing xylenes in excess of the MCL over many years may experience nervous system damage. |

**Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproduct Precursors**

| **Contaminant (CCR units)** | **Traditional MCL or [MRDL] in mg/L** | | **To convert for CCR, multiply by** | **MCL or [MRDL] in CCR units** | **PHG, (MCLG) or [MRDLG]** | **Major Sources in Drinking Water** | **Health Effects Language** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| TTHMs [Total Trihalomethanes] (µg/L) | 0.080 | 1,000 | | 80 | N/A | Byproduct of drinking water disinfection | Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of getting cancer. |
| HAA5 [Sum of 5 Haloacetic Acids] (µg/L) | 0.060 | 1,000 | | 60 | N/A | Byproduct of drinking water disinfection | Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. |
| Bromate (µg/L) | 0.010 | 1,000 | | 10 | 0.1 | Byproduct of drinking water disinfection | Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer. |
| Chloramines (mg/L) | [MRDL = 4.0 (as Cl2)] | - | | [MRDL = 4.0 (as Cl2)] | [MRDLG = 4 (as Cl2)] | Drinking water disinfectant added for treatment | Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia. |
| Chlorine (mg/L) | [MRDL = 4.0 (as Cl2)] | - | | [MRDL = 4.0 (as Cl2)] | [MRDLG = 4 (as Cl2)] | Drinking water disinfectant added for treatment | Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort. |
| Chlorite (mg/L) | 1.0 | - | | 1.0 | 0.05 | Byproduct of drinking water disinfection | Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia. |
| Chlorine Dioxide (µg/L) | [MRDL = 0.8 (as ClO2)] | 1,000 | | [MRDL = 800 (as ClO2)] | [MRDLG = 800 (as ClO2)] | Drinking water disinfectant added for treatment | Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. |
| Control of DBP Precursors (TOC) | TT | - | | TT | N/A | Various natural and manmade sources | Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer. |

# APPENDIX B: Regulated Contaminants with Secondary Drinking Water Standards

Monitoring required by section 64449 of the California Code of Regulations, Title 22.

| **Constituent** | **Secondary MCL (units)** | **To convert to CCR, multiply by** | **MCL in CCR units** | **Typical Source of Contaminant** |
| --- | --- | --- | --- | --- |
| Aluminum | 0.2 mg/L | 1,000 | 200 µg/L | Erosion of natural deposits; residual from some surface water treatment processes |
| Color | 15 Units | - | 15 Units | Naturally-occurring organic materials |
| Copper | 1.0 mg/L | - | 1.0 mg/L | Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |
| Foaming Agents [MBAS] | 0.5 mg/L | 1,000 | 500 µg/L | Municipal and industrial waste discharges |
| Iron | 0.3 mg/L | 1,000 | 300 µg/L | Leaching from natural deposits; industrial wastes |
| Manganese | 0.05 mg/L | 1,000 | 50 µg/L | Leaching from natural deposits |
| Methyl-*tert*-butyl ether [MTBE] | 0.005 mg/L | 1,000 | 5 µg/L | Leaking underground storage tanks; discharge from petroleum and chemical factories |
| Odor---Threshold | 3 Units | - | 3 Units | Naturally-occurring organic materials |
| Silver | 0.1 mg/L | 1,000 | 100 µg/L | Industrial discharges |
| Thiobencarb | 0.001 mg/L | 1,000 | 1 µg/L | Runoff/leaching from rice herbicide |
| Turbidity | 5 Units | - | 5 Units | Soil runoff |
| Zinc | 5.0 mg/L | - | 5.0 mg/L | Runoff/leaching from natural deposits; industrial wastes |
| Total Dissolved Solids [TDS] | 1,000 mg/L | - | 1,000 mg/L | Runoff/leaching from natural deposits |
| Specific Conductance | 1,600 µS/cm | - | 1,600 µS/cm | Substances that form ions when in water; seawater influence |
| Chloride | 500 mg/L | - | 500 mg/L | Runoff/leaching from natural deposits; seawater influence |
| Sulfate | 500 mg/L | - | 500 mg/L | Runoff/leaching from natural deposits; industrial wastes |

Note: There are no PHGs, MCLGs, or mandatory standard health effects language for these constituents because secondary MCLs are set on the basis of aesthetic concerns.

# APPENDIX C: Monitored Contaminants with No MCLs

## Background

The 1996 Amendments to the SDWA required the U.S. EPA to establish criteria for a monitoring program for unregulated contaminants, and to publish, once every five years, a list of no more than 30 contaminants to be monitored by public water systems (PWS).

Section 64450 of the California Code of Regulations also required certain water systems to monitor a number of unregulated contaminants, with contaminant lists that were published or revised in 1990, 1996, 2000, and 2003. This section of the California Code of Regulations was repealed effective October 18, 2007. Water systems that continued to monitor for state unregulated contaminants are encouraged, but not required, to include the information regarding detected contaminants in the CCR.

Although Section 64450 of the California Code of Regulations was repealed, the State Board may request water systems to monitor for specific contaminants per HSC section 116375(b).

## Federal UCMR 1 (2001 – 2003 Monitoring)

The U.S. EPA published the first list of contaminants to monitor as part of the UCMR in September 1999. Contaminants were divided into two lists: Assessment Monitoring (List 1), and Screening Survey (List 2).

Assessment Monitoring of List 1 contaminants was conducted by large PWS serving more than 10,000 people and 800 representative small PWS serving 10,000 or fewer people. Assessment Monitoring was conducted by each PWS over a 12-month period between 2001 and 2003.

Screening Survey was conducted by a randomly selected set of 300 large and small PWSs for List 2 contaminants. Screening Survey for chemical contaminants was conducted in 2001 and 2002 for small and large PWS, respectively. Screening Survey for *Aeromonas* was conducted in 2003 for small and large PWS.

|  |  |
| --- | --- |
| **UCMR 1** | |
| **List 1 – Assessment Monitoring**  2,4-dinitrotoluene  2,6-dinitrotoluene  Acetochlor  DCPA mono-acid degradate  DCPA di-acid degradate  4,4’-DDE  EPTC  Molinate  MTBE  Nitrobenzene  Perchlorate  Terbacil | **List 2 – Screening Survey**  1,2-diphenylhydrazine  2-methyl-phenol  2,4-dichlorophenol  2,4-dinitrophenol  2,4,6-trichlorophenol  *Aeromonas*  Alachlor ESA  Diazinon  Disulfoton  Diuron  Fonofos  Linuron  Nitrobenzene  Prometon  Hexahydro-1,3,5-trinitro-1-3-5-triazine [RDX]  Terbufos |

## Federal UCMR 2 (2008 – 2010 Monitoring)

The U.S. EPA published the second list of contaminants to monitor as part of the UCMR in January 2007.

Assessment Monitoring was required of all PWS serving more than 10,000 people and 800 representative PWS serving 10,000 or fewer people for List 1 contaminants. Assessment Monitoring was required of each PWS during a 12-month period from January 2008 to December 2010.

Screening Survey was required of all PWS serving more than 100,000 people, 320 representative PWS serving 10,001 to 100,000 people, and 480 representative PWS serving 10,000 or fewer people for List 2 contaminants. Screening Survey was required of each PWS during a 12-month period from January 2008 to December 2010.

|  |  |
| --- | --- |
| **UCMR 2** | |
| **List 1 – Assessment Monitoring**  Dimethoate  Terbufos sulfone  2,2',4,4'-tetrabromodiphenyl ether  2,2',4,4',5-pentabromodiphenyl ether  2,2',4,4',5,5'-hexabromobiphenyl  2,2',4,4',5,5'-hexabromodiphenyl ether  2,2',4,4',6-pentabromodiphenyl ether  1,3-dinitrobenzene  2,4,6-trinitrotoluene (TNT)  Hexahydro-1,3,5-trinitro-1,3,5-trazine (RDX) | **List 2 – Screening Survey**  Acetochlor ethane sulfonic acid  Acetochlor oxanilic acid  Alachlor ethane sulfonic acid  Alachlor oxanilic acid  Metolachlor ethane sulfonic acid  Metolachlor oxanilic acid  Acetochlor  Alachlor  Metolachlor  N-nitrosodiethylamine (NDEA)  N-nitrosodimethylamine (NDMA)  N-nitroso-di-n-butylamine (NDBA)  N-nitroso-di-n-propylamine (NDPA)  N-nitrosomethylethylamine (NMEA)  N-nitrosopyrrolidine (NPYR) |

## Federal UCMR 3 (2013 – 2015 Monitoring)

The third UCMR list of contaminants was published in May 2012.

Assessment Monitoring (List 1 Contaminants) was required of all PWS serving more than 10,000 people and 800 representative PWS serving 10,000 or fewer people. Assessment Monitoring was required of each PWS during a 12-month period from January 2013 to December 2015.

Screening Survey (List 2 Contaminants) was required of all PWS serving more than 100,000 people, 320 representative PWS serving 10,001 to 100,000 people, and 480 representative PWS serving 10,000 or fewer people. Screening Survey was required of each PWS during a 12‑month period from January 2013 to December 2015.

Pre-screen Testing (List 3 Contaminants) was required from a selection of 800 representative PWS serving 1,000 or fewer people that do not disinfect. These PWS were selected because they have groundwater wells that were located in areas of karst or fractured bedrock. Monitored lasted 12 months between January 2013 and December 2015.

|  |  |
| --- | --- |
| **UCMR 3** | |
| **List 1 – Assessment Monitoring**  1,2,3-trichloropropane  1,3-butadiene  Chloromethane (methyl chloride)  1,2-dichloroethane  Bromomethane (methyl bromide)  Chlorodifluoromethane (HCFC-22)  Bromochloromethane (halon 1011)  1,4-dioxane  Vanadium  Molybdenum  Cobalt  Strontium  Chromium (total)  Chromium-6  Chlorate  Perfluorooctanesulfonate acid (PFOS)  Perfluorooctanoic acid (PFOA)  Perfluorononanoic acid (PFNA)  Perfluorohexanesulfonic acid (PFHxS)  Perfluoroheptanoic acid (PFHpA)  Perfluorobutanesulfonic acid (PFBS) | **List 2 – Screening Survey**  17-β-estradiol  17-α-ethynylestradiol (ethinyl estradiol)  16-α-hydroxyestradiol (estriol)  Equilin  Estrone  Testosterone  4-anderostene-3,17-dione |
| **List 3 – Pre-Screen Testing**  Enteroviruses  Noroviruses |

## Federal UCMR 4 (2018 – 2020 Monitoring)

The fourth list of contaminants to monitor as part of the UCMR was published by the U.S. EPA in December 2016.

PWSs are required to monitor for 10 cyanotoxins at the entry point to the distribution system during a 4-consecutive month period from March 2018 through November 2020, according to the table below. PWSs are also required to monitor for 20 additional chemical contaminants and indicators during a 12‑month period from January 2018 through December 2020. The sampling site for these additional chemicals is the entry point to the distribution system, except for HAAs that need to be monitored at the Stage 2 D/DBPR sampling sites. The two indicators, *i.e.*, TOC and bromide, need to be monitored at source water intakes.

|  |  |  |
| --- | --- | --- |
| **System Size (Population Served)** | **10 Cyanotoxins** | **20 Chemicals** |
| Small Systems (25 – 10,000) | 800 randomly selected surface water or ground water under the direct influence of surface water (GWUDI) systems | A different group of 800 randomly selected surface water systems, GWUDI and groundwater systems |
| Large Systems (10,001 or more) | All surface water and GWUDI systems | All surface water, groundwater and GWUDI systems |

The 10 cyanotoxins and 20 additional chemical contaminants and indicators are listed in the table below.

|  |  |
| --- | --- |
| **UCMR 4** | |
| **Cyanotoxins**  Total Microcystin  Microcystin-LA  Microcystin-LF  Microcystin-LR  Microcystin-LY  Microcystin-RR  Microcystin-YR  Nodularin  Anatoxin-a  Cylindrospermopsin | **Minimum Reporting Level**  0.3 µg/L  0.008 µg/L  0.006 µg/L  0.02 µg/L  0.009 µg/L  0.006 µg/L  0.02 µg/L  0.005 µg/L  0.03 µg/L  0.09 µg/L |
| **Additional chemicals**  Germanium  Manganese  Alpha-hexachlorocyclohexane  Chlorpyrifos  Dimethipin  Ethoprop  Oxyfluorfen  Profenofos  Tebuconazole  Total Permethrin (cis- & trans-)  Tribufos  HAA5  HAA6Br1  HAA92  1-butanol  2-methoxyethanol  2-propen-1-ol  butylated hydroxyanisole  o-toluidine  quinoline  Total Organic Carbon (TOC)  Bromide | **Minimum Reporting Level**  0.3 µg/L  0.4 µg/L  0.01 µg/L  0.03 µg/L  0.2 µg/L  0.03 µg/L  0.05 µg/L  0.3 µg/L  0.2 µg/L  0.04 µg/L  0.07 µg/L  N/A  N/A  N/A  2.0 µg/L  0.4 µg/L  0.5 µg/L  0.03 µg/L  0.007 µg/L  0.02 µg/L  N/A  N/A |

1 HAA6Br: Bromochloroacetic acid, bromodichloroacetic acid, dibromoacetic acid, dibromochloroacetic acid, monobromoacetic acid, and tribromoacetic acid.

2 HAA9: Bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, tribromoacetic acid, and trichloroacetic acid.

## Reporting

U.S. EPA is essentially silent on the issue of reporting federal UCMR contaminants beyond the previous calendar year’s detections, other than to say it is not required and that data older than five years need not be reported. As a result, the State Board recommends systems to report data for five years from the date of the last sampling.

# APPENDIX D: State Contaminants with Notification Levels

Inclusion of the NL and health effects language for contaminant concentrations detected above the NL is recommended, but not required.

| **Chemical** | **Notification Level** | **Health Effects Language (Optional)** |
| --- | --- | --- |
| Boron | 1 mg/L | Boron exposures resulted in decreased fetal weight (developmental effects) in newborn rats. |
| n-Butylbenzene | 260 µg/L | Exposures to cumene (isopropylbenzene), a surrogate for n-, sec-, and tert-butylbenzene, resulted in increased kidney weight in rats. |
| sec-Butylbenzene | 260 µg/L |
| tert-Butylbenzene | 260 µg/L |
| Carbon Disulfide | 160 µg/L | Carbon disulfide exposures resulted in decreased motor conduction velocity in people. |
| Chlorate | 800 µg/L | Animal studies demonstrated that chlorate exposure in rats caused adverse effects to the pituitary and thyroid glands. |
| 2-Chlorotoluene | 140 µg/L | 2-Chlorotoluene exposures resulted in decrease in body weight gain in rats. 4-Chlorotoluene is expected to have health effects similar to those of 2-chlorotoluene. |
| 4-Chlorotoluene | 140 µg/L |
| Diazinon | 1.2 µg/L | Diazinon exposures may result in neurotoxic effects. |
| Dichlodifluoromethane [Freon 12] | 1 mg/L | Dichlorodifluoromethane exposures resulted in reduced body weight in rats. |
| 1,4-Dioxane | 1 µg/L | 1,4-Dioxane exposures resulted in cancer, based on studies in laboratory animals. |
| Ethylene Glycol | 14 mg/L | Ethylene glycol exposures resulted in kidney toxicity in rats. |
| Formaldehyde | 100 µg/L | Formaldehyde exposures resulted in reduced weight gain and histopathology in rats. |
| Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine [HMX] | 350 µg/L | Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine exposures resulted in liver lesions in rats. |
| Isopropylbenzene | 770 µg/L | Isopropylbenzene exposures resulted in increased kidney weight in rats. |
| Manganese | 500 µg/L | Manganese exposures resulted in neurological effects. High levels of manganese in people have been shown to result in adverse effects to the nervous system. |
| Methyl Isobutyl Ketone [MIBK] | 120 µg/L | Methyl isobutyl ketone exposures resulted in increased kidney and liver weight, and kidney pathology in rats. |
| Naphthalene | 17 µg/L | Naphthalene exposures resulted in decreased body weight in rats. |
| N-Nitrosodiethylamine [NDEA] | 10 ng/L | N-nitrosodiethylamine exposures resulted in cancer in a variety of laboratory animals. |
| N-Nitrosodimethylamine [NDMA] | 10 ng/L | N-nitrosodimethylamine exposures resulted in cancer in a variety of laboratory animals. |
| N-Nitrosodi-n-propylamine [NDPA] | 10 ng/L | N-nitrosodi-n-propylamine exposures resulted in cancer in a variety of laboratory animals. |
| Perfluorooctanoic Acid [PFOA] | 14 ng/L | Perfluorooctanoic acid exposures resulted in increased liver weight in laboratory animals. |
| Perfluorooctanesulfonic Acid [PFOS] | 13 ng/L | Perfluorooctanesulfonic acid exposures resulted in immune suppression, specifically, a decrease in antibody response to an exogenous antigen challenge. |
| Propachlor | 90 µg/L | Propachlor exposures resulted in decrease in weight gain, decrease in food intake, and relative liver weight increase in rats. |
| n-Propylbenzene | 260 µg/L | Exposures to cumene (isopropylene), a surrogate for n‑propylbenzene, resulted in increased kidney weight in rats. |
| Hexahydro-1,3,5-trinitro-1-3-5-triazine [RDX] | 300 ng/L | Hexahydro-1,3,5-trinitro-1-3-5-triazine exposures resulted in liver carcinomas and adenomas in female mice. |
| Tertiary Butyl Alcohol [TBA] | 12 µg/L | Tert-butyl alcohol exposures resulted in cancer in laboratory animals. |
| 1,2,4-Trimethylbenzene | 330 µg/L | 1,2,4-Trimethylbenzene exposures resulted in increased serum phosphorus levels in rats. |
| 1,3,5-Trimethylbenzene | 330 µg/L | 1,3,5-Trimethylbenzene exposures resulted in increased serum phosphorus levels in rats. |
| 2,4,6-Trinitrotoluene [TNT] | 1 µg/L | 2,4,6-Trinitrotoluene exposures resulted in urinary bladder transitional cell papillomas and squamous cell carcinomas in female rats. |
| Vanadium | 50 µg/L | Vanadium exposures resulted in developmental and reproductive effects in rats. |

# APPENDIX E: California’s Detection Limits for Purposes of Reporting (DLRs)

Most contaminants with primary MCLs have DLRs that are in the California Code of Regulations. All other DLRs may be found via the link labeled “Chemical IDs and Detection Limits for Purposes of Reporting (DLRs)” on the State Board website, which is available at <http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/EDT.shtml>.

Many of the DLRs are for contaminants that you do not have to report in your CCR; however, the State Board encourages you to report any of these that you find, particularly if there is: (1) a proposed regulation for the detected chemical, or (2) health guidance available (U.S. EPA health advisory or State Board NL).

If you are uncertain about the inclusion of certain data, talk to your primacy agency. If you cannot find a contaminant listed below and your laboratory analysis provides a detected value for that contaminant, the State Board recommends that you report it in your CCR. If you’re uncertain, always provide too much data rather than too little.

# APPENDIX F: Reporting Monitoring Data

This appendix provides examples of monitoring data and instructions on how to report certain detects in the CCR.

* **Example that demonstrates reporting for one sampling site and one sampling date [California Code of Regulations, section 64481(d)(2)(D)1.A.]:**
* Example Data – Barium Monitoring

|  |  |
| --- | --- |
| Barium MCL | 1 mg/L |
| MCL in CCR units | 1 mg/L |
|  | |
| March 2018 Result | 0.003 mg/L |

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Barium (mg/L) | 1 | 2 | 0.003 | N/A | 2017 | No | Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits |

Note: Monitoring frequency is once every 3 years, therefore the water system will report this same result each CCR year (2017, 2018, and 2019) until the next sample is taken.

* **Example that demonstrates reporting for one sampling site and multiple sampling dates [California Code of Regulations, section 64481(d)(2)(D)1.A.]:**
  + Example Data – Xylenes Monitoring

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Xylenes MCL | 1.750 mg/L | | | | |
| MCL in CCR units | 1.750 mg/L | | | | |
|  | | | | | |
| 2018 Results for Source Reported Individually in CCR Table (mg/L) | 1st Qtr | 2nd Qtr | 3rd Qtr | 4th Qtr | Average |
| 1 | 1 | 2 | ND | 1 |

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Xylenes (mg/L) | 1.750 | 1.8 | 1 | ND - 2 | 2018 | No | Discharge from petroleum and chemical factories; fuel solvent |

* **Example that demonstrates reporting for multiple sampling sites and one sampling date [California Code of Regulations, section 64481(d)(2)(D)1.B.]:**
  + Example Data – Barium Monitoring

|  |  |  |  |
| --- | --- | --- | --- |
| Barium MCL | 1 mg/L | | |
| MCL in CCR units | 1 mg/L | | |
|  | | | |
| Source | Well 1 | Well 2 | Well 3 |
| March 2017 Results (mg/L) | 0.60 | 0.46 | ND |
| Average = 0.35 | | |

If these sources enter the distribution system at the same point, a flow-weighted average may be reported instead of the average computed as follows:

Assuming Wells 1, 2, and 3 contributed 20, 40 and 40 percent, respectively.

Weighted average = 0.2(0.60 mg/L) + 0.4(0.46 mg/L) + 0.4(ND mg/L) = 0.30 mg/L.

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Barium (mg/L) | 1 | 2 | 0.35 | ND – 0.60 | 2017 | No | Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits |

Note: Monitoring frequency is once every 3 years, therefore the water system will report these same results each CCR year (2017, 2018, and 2019) until the next sample is taken.

If reporting a flow-weighted average:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Barium (mg/L) | 1 | 2 | 0.30 | ND – 0.60 | 2017 | No | Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits |

Note: Monitoring frequency is once every 3 years, therefore the water system will report these same results each CCR year (2017, 2018, 2019) until the next sample is taken.

* **Example that demonstrates reporting for multiple sampling sites and multiple sampling dates (compliance: four quarter or six month average) [California Code of Regulations, section 64481(d)(2)(D)1.C.]:**
  + Example Data – Xylenes Monitoring

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Xylenes MCL | 1.750 mg/L | | | | |
| MCL in CCR units | 1.750 mg/L | | | | |
|  | | | | | |
| Source | 2018 Results (mg/L) | | | | |
| 1st Qtr | 2nd Qtr | 3rd Qtr | 4th Qtr | Average |
| Well 1 | 1 | 1 | 2 | ND | 1 |
| Well 2 | Not sampled | Not sampled | Not sampled | 2 | 2 |
| Well 3 | Not sampled | 1 | 2 | ND | 1 |
| All wells |  |  |  |  | 1.3 |

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Xylenes (mg/L) | 1.750 | 1.8 | 1.3 | ND - 2 | 2018 | No | Discharge from petroleum and chemical factories; fuel solvent |

Note: For “Average”, use the average of the individual sampling point averages.

* **Example that demonstrates reporting of multiple sampling sites and multiple sampling dates (compliance: RAA on individual source basis) [California Code of Regulations, section 64481(d)(2)(D)2.A.]:**
  + Example Data – Dalapon Monitoring

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Dalapon MCL | 0.2 mg/L | | | | | | | |
| MCL in CCR units | 200 µg/L | | | | | | | |
|  | | | | | | | | |
| Source | 2018 Results (µg/L) | | | | | | | |
| 1st Qtr | | 2nd Qtr | | 3rd Qtr | | 4th Qtr | |
| Sample Result | Running Average1 | Sample Result | Running Average1 | Sample Result | Running Average1 | Sample Result | Running Average1 |
| Well 1 | 74 | 42 | 60 | 47 | 28 | 50 | 43 | 52 |
| Well 2 | 36 | 26 | 12 | 21 | 6 | 17 | 9 | 16 |

1 RAAs are based on data from previous quarters not reported on this table.

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Dalapon (µg/L) | 200 | 790 | 52 | 6 - 74 | 2018 | No | Runoff from herbicide used on rights-of-way, and crops and landscape maintenance |

Note: For “Average”, use the highest of the RAAs for the year. For “Range”, use the minimum and maximum of the sample results for all locations, all dates.

* **Example that demonstrates reporting of multiple sampling sites and multiple sampling dates (compliance: LRAA – TTHM and HAA5) [California Code of Regulations, section 64481(d)(2)(D).2.B.]:**

**For a System with No LRAA Exceedance**

* + Example Data – TTHM Monitoring (state Stage 2 D/DBPR)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TTHM MCL | 0.080 mg/L | | | |
| MCL in CCR units | 80 µg/L | | | |
|  | | | | |
| Location | 2018 TTHM Results (µg/L) | | | |
| 1st Qtr | 2nd Qtr | 3rd Qtr | 4th Qtr |
| Site 1 | 45 | 60 | 125 | 70 |
| *Site 1 LRAA1* | *44* | *59* | *74* | *75* |
| Site 2 | 40 | 55 | 115 | 60 |
| *Site 2 LRAA1* | *39* | *53* | *67* | *68* |
| Site 3 | 45 | 60 | 105 | 70 |
| *Site 3 LRAA1* | *44* | *61* | *69* | *70* |
| Site 4 | 50 | 65 | 120 | 75 |
| *Site 4 LRAA1* | *49* | *63* | *74* | *78* |

1 LRAA for Quarters 1 to 3 are based on results from previous quarters not reported on this table.

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG (or MCLG) | Average | Range | Sample Date | Violation | Typical Source |
| TTHM (µg/L) | 80 | N/A | 78 | 40 - 125 | 2018 | No | Byproduct of drinking water disinfection |

Note: For “Average”, use the highest of the LRAAs for the year. For “Range”, use the minimum and maximum of the sample results for all locations, all dates.

* **Example that demonstrates reporting of multiple sampling sites and multiple sampling dates (compliance: LRAA – TTHM and HAA5) [California Code of Regulations, section 64481(d)(2)(D).2.B.]:**

**For a System with an LRAA Exceedance**

* + Example Data – TTHM Monitoring (state Stage 2 D/DBPR)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TTHM MCL | 0.080 mg/L | | | |
| MCL in CCR units | 80 µg/L | | | |
|  | | | | |
| Location | 2018 TTHM Results (µg/L) | | | |
| 1st Qtr | 2nd Qtr | 3rd Qtr | 4th Qtr |
| Site 1 | 45 | 60 | 125 | 100 |
| *Site 1 LRAA1* | *44* | *59* | *74* | 83 |
| Site 2 | 40 | 55 | 115 | 60 |
| *Site 2 LRAA1* | *39* | *53* | *67* | *68* |
| Site 3 | 45 | 60 | 105 | 70 |
| *Site 3 LRAA1* | *44* | *61* | *69* | *70* |
| Site 4 | 50 | 65 | 120 | 75 |
| *Site 4 LRAA1* | *49* | *63* | *74* | *78* |

1 LRAAs for Quarters 1 to 3 are based on results from previous quarters not reported on this table.

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG (or MCLG) | Average | Range | Sample Date | Violation | Typical Source |
| TTHM (µg/L) | 80 | N/A | **83** | 40 - **125** | 2018 | Yes1 | Byproduct of drinking water disinfection |

1 See page 22, Item 5.m for instructions on how to highlight the violation in the table and the additional information to include near, but not in the table.

Note: For “Average”, use the highest of the LRAAs for the year. For “Range”, use the minimum and maximum of the sample results for all locations, all dates in this year.

* **Example that demonstrates reporting of turbidity results [California Code of Regulations, section 64481(d)(2)(E)]:**
  + Example Data – Turbidity Monitoring

When reporting turbidity as an indicator of filtration performance, systems must report the highest single measurement and the lowest monthly percentage of samples meeting the requirements specified for that technology. In this situation, you may want to report the data in 2 rows of your table.

* + Example CCR Table Excerpt

For conventional or direct filtration (systems subject to the state Interim Enhanced Surface Water Treatment Rule or Long Term 1 Enhanced Surface Water Treatment Rule):

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant | MCL | PHG | Level Found | Range | Sample Date | Violation | Typical Source |
| Turbidity | TT = 1 NTU | N/A | 0.7 NTU | N/A | 2018 | No | Soil runoff |
| TT = 95% of samples ≤0.3 NTU | 93% | N/A |

For diatomaceous earth filtration:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant | MCL | PHG | Level Found | Range | Sample Date | Violation | Typical Source |
| Turbidity | TT = 5.0 NTU | N/A | 1 NTU | N/A | 2018 | No | Soil runoff |
| TT = 95% of samples ≤0.5 NTU | 93% | N/A |

For slow sand filtration:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant | MCL | PHG | Level Found | Range | Sample Date | Violation | Typical Source |
| Turbidity | TT = 5.0 NTU | N/A | 1 NTU | N/A | 2018 | No | Soil runoff |
| TT = 95% of samples ≤1.0 NTU | 93% | N/A |

For alternative filtration technology:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant | MCL | PHG | Level Found | Range | Sample Date | Violation | Typical Source |
| Turbidity | TT = \* | N/A |  | N/A | 2018 |  | Soil runoff |
| TT = \* |  | N/A |

\* Refer to turbidity limits established by the State Board.

* **Example that demonstrates reporting of lead results [California Code of Regulations, section 64481(d)(2)(F)]:**
  + Example Data – Lead Monitoring

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Lead Action Level (90th percentile) | | | 0.015 mg/L | | | | | | | | |
| Lead DLR | | | 5 µg/L | | | | | | | | |
| AL in CCR units | | | 15 µg/L | | | | | | | | |
|  | | | | | | | | | | | |
| July 2018 Lead Results (µg/L) | Site 1 | Site 2 | | Site 3 | Site 4 | Site 5 | Site 6 | Site 7 | Site 8 | Site 9 | Site 10 |
| Lab Reported Results | ND | ND | | 8 | 12 | 9 | 5 | ND | <5 | 6 | 10 |
| Results Converted per section 64678(c) | 0 | 0 | | 8 | 12 | 9 | 5 | 0 | 0 | 6 | 10 |

Note: If the laboratory reports a finding of “ND” or “< (numerical value of DLR)”, replace the finding with a “zero” (0) per California Code of Regulations, Title 22, section 64678(c).

To calculate the 90th percentile: The results of all samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sample result shall be assigned a number starting with the number 1 for the lowest value. The number of samples taken during the monitoring period shall be multiplied by 0.9. The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile.

Example:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| July 2018 Lead Results (µg/L) | Order 1 | Order 2 | Order 3 | Order 4 | Order 5 | Order 6 | Order 7 | Order 8 | Order 9 | Order 10 |
| 0 | 0 | 0 | 0 | 5 | 6 | 8 | 9 | 10 | 12 |

10 samples x 0.9 = 9; therefore, the ninth value is the 90th percentile value (10 µg/L).

Report in CCR Table: 90th percentile = 10, number of sites sampled = 10, and number of sites above AL (15 µg/L) = 0.

For small systems collecting 5 samples, if the average of the two highest samples is below the reporting level of 5 µg/L, then there is no need to report any detection for lead. If there is only one sample with a detection, then the detected level is divided by 2 and if the result is at or above 5 µg/L, then it should be reported on the CCR.

You must also include a statement summarizing the number of schools that have requested that your system conduct lead sampling.

Public education language is presented on pages 32 and 33.

Water quality parameter data that you collect in association with the LCR should not be included in the CCR.

* + Example CCR Table Excerpt

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Number of Schools Requesting Lead Sampling | Typical Source |
| Lead (µg/L) | AL = 15 | 0.2 | 10 | 10 sites sampled; 0 sites over AL | 2018 | No | 2 | Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits |

* **Example that demonstrates reporting of fluoride results [California Code of Regulations, sections 64481(d)(2)(D)1.A. and B]:**
  + Example CCR Table Excerpt (assume one sampling site and one sampling date)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant (CCR units) | MCL | PHG | Average | Range | Sample Date | Violation | Typical Source |
| Fluoride (naturally occurring) (mg/L)1 | 2.0 | 1 | 0.3 | --- | 2018 | --- | Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories |

1 (Sample wording if fluoride added to the water): *Our water* s*ystem treats your water by adding fluoride to the naturally occurring level to help prevent dental caries in consumers. State regulations require the fluoride levels in the treated water be maintained within a range of [list control range] mg/L with an optimum dose of [list value] mg/L. Our monitoring showed that the fluoride levels in the treated water ranged from [list range] with an average of [list value] mg/L. Information about fluoridation, oral health, and current issues is available from* [*http://www.swrcb.ca.gov/drinking\_water/certlic/drinkingwater/Fluoridation.shtml*](http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/Fluoridation.shtml)*.*

* **Example that demonstrates reporting of radioactivity results [California Code of Regulations, section 64481(c)(1)]:**

Gross alpha monitoring results are used for two purposes: To determine compliance with the gross alpha MCL and to screen for radium and uranium. In both cases, an average of four quarterly samples is used unless the samples have been composited.

*Determining MCL compliance:* Counting errors and minimum detectable activity (MDA) are not included in the averages of gross alpha, uranium, or radium data used to determine compliance with the MCLs. Therefore, they are not included in the data reported in the CCR.

*Screening to determine if radium and uranium testing is necessary:* When the gross alpha data are averaged to determine whether radium or uranium testing should be conducted, counting errors are added in and the MDA is substituted in for any zero result. Confusion about radioactivity data reporting for the CCR has resulted from the way the average is calculated for screening purposes, but this approach is not appropriate for CCR data reporting.

* **Example that demonstrates reporting of sodium and hardness results [California Code of Regulations, section 64481(c)(4)]:**

Although sodium and hardness do not have MCLs, they are of interest to many consumers who are concerned about sodium intake and may believe that the hardness of the water could affect their health. Therefore, monitoring is required and detections should be included in the table(s) along with the other data on water quality. Since there are no MCLs/PHGs/MCLGs, just indicate that in the table in some way (*e.g.*, none, N/A).

No “typical source” is required, though a system may wish to include information such as:

*“Hardness” is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally occurring.*

*“Sodium” refers to the salt present in the water and is generally naturally occurring.*

* **Example that demonstrates reporting of Stage 1 D/DBPR TOC treatment technique violations (surface water treatment plants with conventional treatment or precipitative softening) [California Code of Regulations, section 64481(d)(3)]:**
* Treatment Technique Violation Reporting

If any of the following apply, you must report a TT violation for enhanced coagulation or enhanced softening (if applicable):

* Alternative compliance criteria for enhanced coagulation or enhanced softening cannot be met.
* Quarterly TOC monitoring does not demonstrate the percentage removal of TOC (demonstrated in the table below).
* A system does not obtain state approval for alternate minimum TOC removal (Step 2) requirements.
  + Example Data – For a conventional surface water treatment system with source water TOC between 2 – 4 mg/L and with a source water alkalinity between 0 – 50 mg/L.
  + Example CCR Table Excerpt

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TT Violation | Explanation | Length | Steps Taken to Correct the Violation | Health Effect Language |
| Failure to remove required amount of total organic carbon (TOC) | On [date], we collected samples for TOC before and after our treatment process to determine the percentage of TOC we were removing. Results showed that we were removing 25 percent of the TOC. We are required to remove 35 percent of the TOC. | 1 month | We examined our treatment processes to see if we could improve our removal of TOC. We made some adjustments to our process on [date]. Samples collected after that time show that we are able to achieve 35 percent removal. | Total organic carbon (TOC) has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer. |

* **Example that demonstrates reporting of LT2ESWTR treatment technique violations:**
* Treatment Technique Violation Reporting

For violation of TTs under the LT2ESWTR, the system must provide an explanation of the violation, an indication of the length of the violation, information on steps taken to correct the violation, and health effects language. Because there are no standard health effects language provided for these TTs, the system would have to write language specific to the violation. You can use the health effect language for contaminants as an example or template.

* + Example CCR Table Excerpt

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TT Violation | Explanation | Length | Steps Taken to Correct the Violation | Health Effect Language |
| Uncovered and Untreated Finished Water Reservoir | The Alma finished water reservoir is uncovered and the discharge is not treated. We were required to address this situation by [date]. | 17 months | We have hired an engineering firm to design a cover for the tank. We intend to have the tank covered by [date]. | Inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |
| Determine and Report Bin Classification | After conducting our source water monitoring for *Cryptosporidium*, we were required to determine and report our Bin Classification by [date]. | 1 month | We have since determined our bin classification and reported this to the State Water Resources Control Board. | Inadequately treated water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |
| Provide or Install an Additional Level of Treatment | Based on our bin classification, we were required to provide or install an additional level of treatment by [date]. | 6 months | We hired an engineering firm to prepare a preliminary engineering report. The report listed treatment alternatives. We selected one of the alternatives and are in the process of constructing it. We anticipate that it will be completed by [date]. | Inadequately treated water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |

* **Example that demonstrates reporting of GWR special notice for fecal indicator-positive groundwater source sample:**
  + Example Data – *E. coli*

This system was triggered to conduct source water monitoring after a TCR positive sample in December 2018. In this example, both the distribution and the source samples were positive for *E. coli*. The system took five additional source samples and one was positive. Below is an example of reporting for both the TCR violation and the GWR special notice.

The required special notice language for fecal indicator-positive samples must be provided in the CCR. For this example, we have included it as footnote to the table.

* + Example CCR Table Excerpt – *E. coli*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant | MCL | MCLG | Your Water | Range | Sample Date | Violation | Typical Source |
| *E. coli* (in the distribution system) | 0 | 0 | 1 positive sample | ND - 1 | 2018 | Yes1 | Human or animal fecal waste |
| *E. coli* (at the groundwater source)2 | 0 | 0 | 2 positive samples | ND - 1 | 2018 | No | Human or animal fecal waste |

1 We were notified on December 9, 2018, of an *E. coli* positive sample in the distribution system. You may remember receiving public notification of this violation on December 10. For reasons discussed in the next paragraph, we took Well 1 off-line on December 11. The duration of the violation was two days. We are addressing this contaminated well as discussed below.

2 On December 20, 2018, we sampled the sources (Well 1 and Well 2) for the fecal-indicator, *E. coli*. We were notified on December 11 that Well 1 tested positive for *E. coli*. On December 12, we took five additional samples and were notified on December 13 that two of the five samples were positive for *E. coli*. We immediately took Well 1 off-line at that time. Our system is in contact with the State Water Resources Control Board, and we have a State Board-approved plan to abandon this well and replace it with a new well. We will have the new well completed by July 5, 2018, and the old well will be abandoned by July 15, 2018. As an interim measure, we have moved to only utilizing this well as an emergency source and have not had to utilize it since the sampling revealed the contamination.

Health Effects: Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

* + Example Data – Enterococci or Coliphage

If the system had sampled for (and found) enterococci or coliphage as their fecal indicator, the table would read as shown in the sample below.

* + Example CCR Table Excerpt – Enterococci or Coliphage

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Contaminant | MCL | MCLG | Your Water | Range | Sample Date | Violation | Typical Source |
| Enterococci (at the groundwater source)1 | TT | N/A | 2 positive samples | ND - 1 | 2018 | No | Human or animal fecal waste |
| Coliphage (at the groundwater source)1 | TT | N/A | 2 positive samples | ND - 1 | 2018 | No | Human or animal fecal waste |

1 Special notice required text and health effects language would be provided in the CCR – possibly in a footnote to the table as shown in the previous example for *E. coli*.

Health Effects: Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

* **Example that demonstrate reporting of GWR treatment technique violations for failure to take corrective action for fecal indicator-positive groundwater source sample:**
  + Example Data

If in the example shown on the previous page, the system did not complete corrective action(s) within 120 days (or earlier if required by State Board) of the fecal indicator-positive source sample, or failed to be in compliance with a State Board-approved corrective action plan and schedule, it will be in violation of the TT.

* + Example CCR Table Excerpt

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TT Violation | Explanation | Length | Steps Taken to Correct the Violation | Health Effect Language |
| Corrective Action for Groundwater Fecal Indicator Source Sample(s) | We were required to take corrective action to address the fecal contamination in our well. | 3 months | We have contacted the State Water Resources Control Board and are now on a corrective action plan. We will abandon the contaminated well and drill a new one. We will have the new well completed by [date], and the old well will be abandoned by [date]. | Inadequately protected or treated water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches. |

* **NOTE: How to determine “sample result” for an initial sample with 1 or 2 confirmation samples (compliance: initial or averaged with confirmation samples)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Xylenes (µg/L)** | **Initial Sample** | **Confirmation 1** | **Confirmation 2** | **Sample Result** |
| Well 1 | 36 | ND | 16 | 26 |
| Well 2 | 18 | 6 | not needed | 12 |
| Well 3 | 7 | ND | ND | ND |

# APPENDIX G: CCR Certification Form (Suggested Format)

**Consumer Confidence Report**

**Certification Form**

*(to be submitted with a copy of the CCR)*

**(To certify electronic delivery of the CCR, use the certification form on the State Board’s website at** [**http://www.swrcb.ca.gov/drinking\_water/certlic/drinkingwater/CCR.shtml**](http://www.swrcb.ca.gov/drinking_water/certlic/drinkingwater/CCR.shtml)**)**

|  |  |
| --- | --- |
| Water System Name: |  |
| Water System Number: |  |

The water system named above hereby certifies that its Consumer Confidence Report was distributed on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*date*) to customers (and appropriate notices of availability have been given). Further, the system certifies that the information contained in the report is correct and consistent with the compliance monitoring data previously submitted to the State Water Resources Control Board, Division of Drinking Water.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Certified by: | Name: |  |  |  |
|  | Signature: |  |  |  |
|  | Title: |  |  |  |
|  | Phone Number: | ( ) | Date: |  |

*To summarize report delivery used and good-faith efforts taken, please complete the below by checking all items that apply and fill-in where appropriate:*

CCR was distributed by mail or other direct delivery methods. Specify other direct delivery methods used:

“Good faith” efforts were used to reach non-bill paying consumers. Those efforts included the following methods:

Posting the CCR on the Internet at www.

Mailing the CCR to postal patrons within the service area (attach zip codes used)

Advertising the availability of the CCR in news media (attach copy of press release)

Publication of the CCR in a local newspaper of general circulation (attach a copy of the published notice, including name of newspaper and date published)

Posted the CCR in public places (attach a list of locations)

Delivery of multiple copies of CCR to single-billed addresses serving several persons, such as apartments, businesses, and schools

Delivery to community organizations (attach a list of organizations)

Other (attach a list of other methods used)

*For systems serving at least 100,000 persons*: Posted CCR on a publicly-accessible internet site at the following address: www.

*For investor-owned utilities*: Delivered the CCR to the California Public Utilities Commission

*This form is provided as a convenience for use to meet the certification requirement of the California Code of Regulations, section 64483(c).*

# APPENDIX H: Translations of “Note of Importance” for CCR

Pursuant to the California Code of Regulations, section 64481(l), your CCR is required to contain information in Spanish on the importance of the report or contain a telephone number or address where Spanish-speaking residents may contact the water system to obtain a translated copy of the report or assistance in Spanish. For any language spoken by a non-English speaking group that exceeds 1,000 residents or 10 percent of the residents in a community, the CCR is required to contain the same information in the appropriate language(s).

In addition to the English CCR template, the State Board is offering CCR templates in Spanish, Mandarin, Tagalog, Vietnamese, and Hmong, for your convenience. These templates are available at <https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/CCR.html>. The State Board is also offering translations of the below statement in 18 of the languages most spoken in California[[10]](#footnote-10). If a utility has a translation not available on this website that it would like to share with other utilities, please contact Melissa Hall, P.E. at (916) 323-0373 or [Melissa.Hall@waterboards.ca.gov](mailto:Melissa.Hall@waterboards.ca.gov).

|  |
| --- |
| *This report contains important information about your drinking water. Please contact [****Enter******Water System’s Name Here****] at [****Enter******Water System’s Address or Phone Number Here****] for assistance in [****Language****].* |

**Armenian**

Այս զեկույցը պարունակում է կարեւոր տեղեկություններ ձեր խմելու ջրի մասին: Խնդրում ենք դիմել [***Enter Water System’s Name Here***] ջրի համակարգի հասցեով [***Enter Water System’s Address Here***] կամ հեռախոսահամարով [***Enter Water System’s Phone Number Here***] հայերենով օգնություն ստանալ համար:

**Cantonese**

本報告包含閣下飮用水嘅重要訊息。 如需廣東話垂詢，請聯絡 [***Enter Water System’s Name, with Address or Phone Number Here***]。

**Farsi, Persian**

گزارش شامل اطلاعات مهمی در مورد آب آشامیدنی شماست. لطفا برای کسب این اطلاعات به صفحه [***Enter Water System’s Name Here***] ، قسمت [***Enter Water System’s Address or Phone Number Here***] و گویش مورد نظر مراجعه فرمایید.

**French**

Ce rapport contient des informations importantes concernant votre eau potable. Veuillez contacter [***Enter Water System’s Name Here***] à [***Enter Water System’s*** *A****ddress or Phone Number Here***] pour de plus amples informations en français.

**German**

Dieser Bericht enthält wichtige Information über Ihr Trinkwasser. Bitte wenden Sie sich an [***Enter Water System’s*** ***Name Here***] unter [***Enter Water System’s******Address or Phone Number Here***], um Unterstützung in deutscher Sprache zu erhalten.

**Hindi**

इस रिपोर्ट में आपके पीने के जल से सम्बंधित महत्वपूर्ण जानकारी है l

हिंदी में सहायता के लिए, [***Enter Water System’s Name Here*]** को [***Enter Water System’s Address Here*]** अथवा [***Enter Water System’s Phone Number Here*]** पर संपर्क करें l

**Hmong**

Tsab ntawv no muaj cov ntsiab lus tseem ceeb hais txog koj cov dej haus. Thov hu rau [***Enter Water System’s Name Here***] ntawm [***Enter Water System’s Address or Phone Number Here***] yog koj xav tau kev pab hais lus Hmoob.

**Japanese**

この報告書には上水道に関する重要な情報が記されております。  
ご質問等ございましたら、[***Enter Water System’s Name, with Address or Phone Number Here***]まで日本語でご連絡下さい。

**Korean**

이 보고서는 당신의 식수에 관한 중요한 정보를 포함하고 있습니다. 한국어로 된 도움을 원하시면 [***Enter Water System’s Name, with Address or Phone Number Here***] 로 문의 하시기 바랍니다.

**Mandarin (Simplified)**

这份报告含有关于您的饮用水的重要讯息。请用以下地址和电话联系 [***Enter Water System’s Name Here***]以获得中文的帮助:[***Enter Water System’s Address Here***][***Enter Water System’s Phone Number Here***]

**Mandarin (Traditional)**

這份報告含有關於您的飲用水的重要訊息。請用以下地址和電話聯繫 [***Enter Water System’s Name Here***]以獲得中文的幫助:**[*Enter Water System’s Address Here*][*Enter Water System’s Phone Number Here*]**

**Portuguese**

Este relatório contém informação importante sobre sua água potável. Por favor entre em contato com [***Enter Water System’s Name Here***] a [***Enter Water System’s Phone Number Here***] para auxílio em portugués.

**Punjabi**

ਐੱਸ ਰਿਪੋਟ ਵਿਚ ਤੁਵਾੜੇ ਪੀਣੇ ਦੇ ਪਾਣੀ ਵਾਰੇ ਮਹੱਤਵਪੂਰਨ ਸੂਚਨਾ ਹੈ l ਪੰਜਾਬੀ ਵਿਚ ਮਦਦ ਲਈ, [***Enter Water System’s Name Here***] ਨੂੰ [***Enter Water System’s Address Here***] ਜਾਂ [***Enter Water System’s Phone Number Enter***] ਤੇ ਸੰਪਰਕ ਕਰੋ l

**Russian**

Этот отчет содержит важную информацию о вашей питьевой воде. Пожалуйста, свяжитесь с [***Enter Water System’s Name Here***] по [***Enter Water System’s Address or Phone Number Enter***] для получения помощи на русском языке.

**Spanish**

Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse [***Enter Water System’s Name Here***] a [***Enter Water System’s Address or Phone Number Here***] para asistirlo en español.

**Tagalog**

Ang pag-uulat na ito ay naglalaman ng mahalagang impormasyon tungkol sa inyong inuming tubig. Mangyaring makipag-ugnayan sa [***Enter Water System’s Name and Address Here***] o tumawag sa [***Enter Water System’s Phone Number Here***] para matulungan sa wikang Tagalog.

**Thai**

รายงานฉบับนี้มีข้อมูลที่สำคัญเกี่ยวกับน้ำประปาของท่าน  
กรุณาติดต่อ [***Enter Water System’s Name Here***] ที่ [***Enter Water System’s Address or Phone Number Here***] เพื่อการช่วยเหลือในภาษาไทย

**Vietnamese**

Báo cáo này chứa thông tin quan trọng về nước uống của bạn. Xin vui lòng liên hệ [***Enter Water System’s Name Here***] tại [***Enter Water System’s Address or Phone Number Here***] để được hỗ trợ giúp bằng tiếng Việt.

# APPENDIX I: Source Water Protection and Water Conservation Tips for Consumers

Examples of tips for source water protection and water conservations that could appear in a CCR are shown in the tables below.

|  |
| --- |
| **Examples of Source Water Protection Tips for Consumers** |
| Protection of drinking water is everyone’s responsibility. You can help protect your community’s drinking water source in several ways:   * Eliminate excess use of lawn and garden fertilizers and pesticides – they contain hazardous chemicals that can reach your drinking water source. * Pick up after your pets. * If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system. * Dispose of chemicals properly; take used motor oil to a recycling center. * Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use U.S. EPA’s Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network’s How to Start a Watershed Team. * Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people “Dump No Waste – Drains to River” or “Protect Your Water”. Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body. |

|  |
| --- |
| **Water Conservation Tips for Consumers – Example Language** |
| Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.   * Take short showers – a 5 minutes shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath. * Shut off water while brushing your teeth, washing your hair, and shaving and save up to 500 gallons a month. * Use a water-efficient showerhead. They are inexpensive, easy to install, and can save you up to 750 gallons a month. * Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month. * Water plants only when necessary. * Fix leaking toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month. * Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation. * Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month’s water bill! * Visit https://www.epa.gov/watersense for more information. |

1. From the Demographic Statistical Atlas of the United States, September 4, 2018, https://statisticalatlas.com/state/California/Languages. [↑](#footnote-ref-1)
2. U.S. EPA is essentially silent on the issue of reporting federal UCMR contaminants beyond the previous calendar year’s detections, other than to say it is not required and that data older than five years need not be reported. As a result, the State Board recommends systems to report data for five years from the date of the last sampling. [↑](#footnote-ref-2)
3. Under the federal RTCR, a seasonal system means a non-community water system (*i.e.*, nontransient-noncommunity water system or a transient-noncommunity water system) that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating session. [↑](#footnote-ref-3)
4. Federal RTCR mandatory language revised to omit “that we conducted” at the end of the sentence because the State Board is conducting the Level 2 Assessment. [↑](#footnote-ref-4)
5. In a previous rulemaking, “Department” was inadvertently changed to “State Board.” The mandatory language will be updated as follows in a future rulemaking, and water systems may use this language in their CCRs in the interim: *“The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.”* Additional information on bottled water is available on California Department of Public Health’s website at <https://www.cdph.ca.gov/Programs/CEH/DFDCS/Pages/FDBPrograms/FoodSafetyProgram/Water.aspx>. [↑](#footnote-ref-5)
6. All water systems are required to comply with the state LCR. Water systems are also required to comply with the federal LCR, and its revisions and corrections. The 2007 Short-term Revisions of the LCR included mandatory language requirements that have not yet been adopted by the State Board. [↑](#footnote-ref-6)
7. Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or system fails to take repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*. [↑](#footnote-ref-7)
8. Effective June 11, 2006, the gross beta particle activity MCL is 4 millirem/year annual dose equivalent to the total body or any internal organ. 50 pCi/L is used as a screening level. [↑](#footnote-ref-8)
9. If reporting results for Ra-226 and Ra-228 as individual constituents, the PHG is 0.05 pCi/L for Ra-226 and 0.019 pCi/L for Ra-228. [↑](#footnote-ref-9)
10. From the Demographic Statistical Atlas of the United States, September 4, 2018, <https://statisticalatlas.com/state/California/Languages> [↑](#footnote-ref-10)