INITIAL STATEMENT OF REASONS

SUMMARY OF PROPOSAL

These proposed regulations serve two purposes, both required as a result of legislative enactments. The first and primary purpose is to adopt a maximum contaminant level (MCL) for hexavalent chromium in drinking water, as required by sections 116365 and 116365.5 of the California Safe Drinking Water Act (Health and Saf. Code, div. 104, pt. 12, ch. 4, §116270 et seq.). The second purpose is to revise and augment regulations, in a manner consistent with section 116450 of the California Safe Drinking Water Act, related to the public notification of public water systems' violation of provisions of California's Safe Drinking Water Act and regulations adopted thereunder.

These proposed regulations for the establishment of maximum contaminant levels are being adopted by the Department of Public Health. A drinking water maximum contaminant level is a standard applicable to water supplied by public water systems and intended for human consumption, including drinking, cooking, bathing and oral hygiene; and is enforceable under the California Safe Drinking Water Act. The harmful contaminants regulated by maximum contaminant levels may be biological, chemical or mineral, and may be naturally occurring or the result of human activities. State and regional water quality control boards have the authority to regulate contamination of groundwater, including hexavalent chromium contamination of groundwater, which occurred as a result of business or industrial practices. These regional water quality control boards' authorities include requiring violators to take mitigation actions and the boards may enforce actions they determine to be appropriate, which may be lower than the maximum contaminant level proposed in this regulation. These regulations do not restrict the authority of the regional water quality control boards to order the cleanup of contaminated water.

POLICY STATEMENT OVERVIEW

Problem Statement: The California Department of Public Health (Department; formerly, the California Department of Health Services (CDHS)), as well as the U.S. Environmental Protection Agency, establish drinking water standards to ensure the drinking water provided to the public by public water systems is safe, potable, reliable, and protective of public health. For drinking water served to the public, the Department establishes maximum allowable levels for various contaminants that occur in sources of drinking water supplies, whether man-made or naturally occurring. These maximum levels are known as maximum contaminant levels or MCL's, and are also known as primary drinking water standards. A drinking water standard specific for hexavalent chromium does not exist at the national or state level. Section 116365.5 of the Health and Safety Code mandates that the Department establish a primary drinking water standard for hexavalent chromium on or before January 1, 2004. However, a standard for hexavalent chromium could not be adopted without the establishment of a public health goal (PHG). This step was completed in 2011 by the Office of Environment

Health Hazard Assessment, an office within California's Environmental Protection Agency. Section 116365 of the Health and Safety Code imposes requirements on the Department for adoption of primary drinking water standards for the protection of drinking water quality for the human environment. Additionally, in 2011, California Assembly Bill (AB) 938 was chaptered, revising section 116450 of the Health and Safety Code, establishing criteria specific to Tier 1 public notifications provided by a public water system that are more stringent than existing regulations. The regulations are amended to implement, interpret, or make specific the statutory provisions of sections 116365 and 116365.5 of the Health and Safety Code and AB 938.

Objectives (Goals): Broad objectives of this proposed regulatory action are to:

- Adopt a drinking water MCL for hexavalent chromium for the protection of public health and the environmental quality of drinking water, consistent with statutory requirements.

- Update existing drinking water public notification regulations, consistent with statutory bilingual notification requirements.

Benefits: Anticipated benefits from this proposed regulatory action are:

- Provide increased public health protection by reducing the potential risk of adverse health effects associated with hexavalent chromium.

- Increase the ease at which crucial public health information related to drinking water contamination is disseminated to non-English-speaking groups.

EVALUATION AS TO WHETHER THE PROPOSED REGULATIONS ARE INCONSISTENT OR INCOMPATIBLE WITH EXISTING STATE REGULATIONS

The Department evaluated this proposal as to whether the proposed regulations are inconsistent or incompatible with existing state regulations. This evaluation included a review of the Department's existing general regulations and those regulations specific to hexavalent chromium and Tier 1 public notice bilingual requirements for drinking water. An internet search of other state agency regulations, including those of the State Water Resources Control Board, was also performed. State and Regional water quality control boards currently have the authority to regulate contamination of groundwater, including hexavalent chromium contamination of groundwater, which occurred as a result of business or industrial practices. These regional water quality control boards' authorities include requiring violators to take mitigation actions and the boards may enforce standards they determine to be appropriate, which may be lower than the maximum contaminant level proposed in this regulation. These regulations do not restrict the authority of the regional water quality control boards to order the cleanup of contaminated water. It was determined that no other state regulation addressed the same subject matter and that this proposal was not inconsistent or incompatible with other state regulations. Therefore, the Department has determined that this proposal, if adopted, would not be inconsistent or incompatible with existing state regulations.

BACKGROUND/AUTHORITY

All suppliers of domestic water to the public are subject to regulations adopted by the U.S. Environmental Protection Agency (EPA) under the Safe Drinking Water Act of 1974, as amended (42 U.S.C. 300f et seq.), as well as by the Department under the California Safe Drinking Water Act (Health & Saf. Code, div. 104, pt. 12, ch. 4, § 116270 et seq.). California has been granted primary enforcement responsibility, ("primacy") by U.S. EPA for public water systems in California. California has no authority to enforce federal regulations, but only state regulations. Federal law and regulations require that California, in order to receive and maintain primacy, promulgate regulations that are no less stringent than the federal regulations. Currently, U.S. EPA has a drinking water standard for chromium, which includes hexavalent chromium as an element of chromium, but has no standard specifically for hexavalent chromium. Pursuant to Health and Safety Code sections 116350, 116375, 131052, and 131200, the Department has the responsibility and authority to adopt the subject regulations.

In accordance with federal regulations, California requires a public water system to sample their sources and have the samples analyzed for inorganic chemicals to determine compliance with drinking water standards, including MCL. Primary MCL are based on health protection, technical feasibility, and costs. The public water system must notify the Department and the public when noncompliant with a primary MCL and take appropriate action.

Section 116365.5 of the Health and Safety Code mandates that the Department establish a primary drinking water standard for hexavalent chromium on or before January 1, 2004. Section 116365 of the Health and Safety Code imposes requirements on the Department for adoption of primary drinking water standards. One of those requirements is that the Department set the MCL as close as possible to the public health goal (PHG) established by the California Environmental Protection Agency Office of Environmental Health Hazard Assessment (Cal/EPA OEHHA), to the extent technologically and economically feasible. OEHHA established the PHG for hexavalent chromium on July 27, 2011. OEHHA set the PHG at 0.02 micrograms per liter (µg/L), equivalent to 0.00002 milligrams per liter (mg/L).

In 2011, California AB 938 was chaptered, which commencing July 1, 2012, requires the following when a written Tier 1 public notice is given by the public water system:

- It shall be provided in English, Spanish, and in the language spoken by any non-English-speaking group that exceeds 10 percent of persons served by the public water system, and shall contain a telephone number or address where residents may contact the public water system for assistance; and

- For each non-English-speaking group that speaks a language other than Spanish and that exceeds 1,000 residents but is less than 10 percent of the persons served by the public water system, the notice shall contain information regarding the importance of the notice and a telephone number or address where the

public water system will provide either a translated copy of the notice or assistance in the appropriate language.

The Department also proposes a number of nonsubstantive changes, which will correct grammar, punctuation, spacing, spelling, typographical error, use of plural and upper/lower case, page numbers referenced in the *Federal Register*, and reference to sections, subsections, and paragraphs; include common alternative terminology; delete subsection and subparagraph designations; and delete redundant text and unnecessary punctuation and text.

Pursuant to federal primacy requirements and sections 116350, 116375, 131052, and 131200 of the Health and Safety Code, the Department proposes the below noted changes to title 22.

- Amend section 64213 (Chemical Quality Monitoring) to make section reference revisions and nonsubstantive changes.
- Amend section 64431 (Maximum Contaminant Levels – Inorganic Chemicals) as follows:
  - (a) to make nonsubstantive changes; and
  - Table 64431-A to adopt a hexavalent chromium MCL.
- Amend section 64432 (Monitoring and Compliance – Inorganic Chemicals) as follows:
  - (a) and (b) to make nonsubstantive changes;
  - (b)(1) to allow “grandfathering” of prior groundwater monitoring of inorganic chemicals when meeting specific criteria;
  - (b)(2) to allow screening for hexavalent chromium using chromium, under certain conditions;
  - (c) and (d) to make nonsubstantive changes;
  - Table 64432-A to adopt a hexavalent chromium detection limit for purposes of reporting;
  - (h)(2)(A) and (B), (m), (n), (o), and (o)(1) and (2) to make nonsubstantive changes; and
  - (p) to establish a directive for a distribution system chromium speciation study.
- Amend section 64447.2 (Best Available Technologies (BAT) – Inorganic Chemicals) as follows:
  - First paragraph to make a nonsubstantive change; and
    - Table 64447.2-A to adopt best available technologies for hexavalent chromium, include common alternative terminology, and make nonsubstantive changes.
- Amend section 64463 (General Public Notification Requirements) as follows:
  - (b) to clarify that notices for Department review and approval are to be in English, consistent with AB 938; and
  - (d) and (e) to make nonsubstantive changes.
- Amend section 64465 (Public Notice Content and Format) as follows:
  - (a)(10) to make a nonsubstantive change;

  - (c) to adopt Tier 1 public notice bilingual requirements consistent with AB 938, reorganize Tier 2 and 3 public notice bilingual requirements, and include a clarifying notice to specific public water systems subject to the Dymally-Alatorre Bilingual Services Act;
  - Appendices 64465-A and -B to make nonsubstantive changes;
  - Appendix 64465-C to adopt public notification (health effects) language for total radium;
  - Appendix 64465-D to adopt public notification (health effects) language for hexavalent chromium; and
  - Appendices 64465-E, -G, and -H to make nonsubstantive changes.
- Amend section 64481 (Content of the Consumer Confidence Report) as follows:
  - (d)(2)(D)3. to delete an obsolete Consumer Confidence Report reporting requirement;
  - (d)(2)(l) for consistency with appendix 64481-A;
  - (g)(2) to reference the current public notification (health effects) language for surface water treatment contaminants and delete obsolete public notification (health effects) language;
  - (l) for consistency with changes made to public notice bilingual requirements under section 64465(c); and
    - Appendix 64481-A to adopt Consumer Confidence Report (major origins in drinking water) language for total radium and hexavalent chromium.
- Amend section 64530 (Applicability of This Chapter); (c) and Table 64530-A to make nonsubstantive changes.
- Amend section 64534 (General Monitoring Requirements); (a) to make nonsubstantive changes.
- Amend section 64534.2 (Disinfection Byproducts Monitoring) as follows:
  - (a)(2) to make a nonsubstantive change;
  - (c)(2) to delete an obsolete source water bromide monitoring requirement;
  - (c)(3) and (3)(A) to make nonsubstantive changes;
  - (c)(3)(B) to delete an obsolete criterion to resume routine bromate monitoring; and
  - (d)(2) to make a nonsubstantive change.
- Amend section 64534.8 (Monitoring Plans) as follows:
  - (b)(3) to make nonsubstantive changes; and
  - (d)(1) and (2) to make nonsubstantive changes and update *Federal Register* citations.
- Amend section 64535.2 (Determining Disinfection Byproduct Compliance) as follows:
  - (a)(1), (2), and (3) to provide compliance determinations based on the MCL, not a multiple of the MCL; and
  - (b), (d), and (d)(2) and (3) to make nonsubstantive changes.
- Amend section 64535.4 (Determining Disinfectant Residuals Compliance); (a)(1), (2), and (3) to provide compliance determinations based on the Maximum Residual Disinfectant Levels, not a multiple of the Maximum Residual Disinfectant Levels.

- Amend section 64671.80 (Water Quality Parameter or WQP) to make a nonsubstantive change.

The net effects of the proposed regulations would be as follows:

- Community water systems and nontransient noncommunity water systems would be required to monitor for hexavalent chromium, comply with a hexavalent chromium MCL, and report results;
- Community water systems and nontransient noncommunity water systems would be allowed to “grandfather” prior groundwater monitoring for a newly adopted inorganic chemical MCL when meeting specific criteria;
- Community water systems and nontransient noncommunity water systems would be allowed to screen for hexavalent chromium using chromium, under certain conditions;
- Community water systems and nontransient noncommunity water systems would be required, if directed by the Department, to conduct a Department-approved distribution system chromium speciation study;
- The best available technologies would be specified for hexavalent chromium removal;
- The public notices public water systems submit to the Department for review and approval prior to distribution or posting would be required to be in English;
- Public water systems would be required to comply with Tier 1 public notice bilingual requirements consistent with AB 938;
- Nontransient noncommunity water systems that violate the total radium MCL would be required to use specific public notification (health effects) language;
- Community water systems and nontransient noncommunity water systems that violate the hexavalent chromium MCL would be required to use specific public notification (health effects) language.
- Nontransient noncommunity water systems that detect total radium would be required to use specific Consumer Confidence Report (major origins in drinking water) language;
- Community water systems and nontransient noncommunity water systems that detect hexavalent chromium would be required to use specific Consumer Confidence Report (major origins in drinking water) language; and
- Community water systems and nontransient noncommunity water systems would be required to make compliance determinations for disinfectant residuals and disinfection byproducts based on Maximum Residual Disinfectant Levels and MCL, not multiples of Maximum Residual Disinfectant Levels and MCL, respectively.

None of the proposed amendments would affect California’s primacy status, because the net effect of these amendments is that the state’s regulation would be more stringent than the federal regulation, consistent with section 116270(f) of the Health and Safety Code. The U.S. EPA has not yet proposed or adopted an MCL for hexavalent chromium.

SPECIFIC DISCUSSION OF PROPOSED REGULATIONS

The proposed regulations are contained in title 22, division 4, chapters 14 (article 3), 15 (articles 4, 12, 18, and 20), 15.5 (articles 1, 3, and 4), and 17.5 (article 1), California Code of Regulations. The following provides a detailed discussion of the proposed changes.

Title 22, CCR, Division 4, Chapter 14, Article 3

Section 64213, Chemical Quality Monitoring.

Subsection (a) would be revised to correct use of upper/lower case and, as a result of revisions to section 64431(a), delete the unnecessary subsection designation.

Subsection (c) would be revised to correct use of upper/lower case and punctuation.

Title 22, CCR, Division 4, Chapter 15, Article 4

Section 64431, Maximum Contaminant Levels – Inorganic Chemicals. The purpose of this section is to list the inorganic chemicals for which MCL have been established to protect the health of consumers of drinking water served by community water systems and nontransient noncommunity water systems and reduce the potential risk of adverse health effects. MCLs are established in units of milligrams per liter (mg/L), sometimes referred to as "parts per million" (ppm). At low concentrations, contaminant concentrations are sometimes referenced using units of micrograms per liter (µg/L), also known as "parts per billion" (ppb).

Subsection (a) would be revised to delete the unnecessary subsection designation and correct use of upper/lower case.

Table 64431-A would be revised to adopt a hexavalent chromium MCL. The rationale for the proposed MCL is provided below; it includes hexavalent chromium characteristics, history, occurrence in water, analytical methodology, health effects, and a cost-benefit analysis summary.

About Hexavalent Chromium

Chromium is a heavy metal that occurs throughout the environment. The trivalent form, also commonly known as "chromium 3" or "chromium III," is a required nutrient and has very low toxicity. The hexavalent form, also commonly known as "chromium 6" or "chromium VI," is more toxic and has been known to cause cancer when inhaled. In recent scientific studies in laboratory animals, hexavalent chromium has also been linked to cancer when ingested.

The presence of hexavalent chromium found in drinking water sources is attributed to both its natural occurrence and industrial use. Naturally occurring hexavalent chromium may be present in groundwater at levels up to, and in some cases exceeding, 100 µg/L.

Data gathered in California appears to validate these findings and provide further evidence that hexavalent chromium in groundwater and drinking water sources is naturally occurring due to its presence in geological formations throughout the state. Between 2000 – 2004, hexavalent chromium has been found, to some extent, in 51 of 58 counties in California and is principally in the counties of Fresno, Kern, Los Angeles, Monterey, Riverside, Sacramento, San Bernardino, San Joaquin, Santa Clara, Stanislaus, and Tulare; these counties have 100 or more sources with detectable levels of hexavalent chromium.

However, there are areas of contamination in California from industrial activities that used hexavalent chromium, such as the manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion processes, where hexavalent chromium contaminated waste has migrated into the underlying groundwater. The presence and concentration of hexavalent chromium in surface water sources is less than that found in groundwater sources.

Current MCL for Chromium

Hexavalent chromium is currently regulated under the 0.05 mg/L MCL for chromium. California's MCL for chromium was established in 1977, when the Department adopted what was then a "National Interim Drinking Water Standard" for chromium. The chromium MCL was established to address exposures to hexavalent chromium, which is the more toxic form of chromium. The U.S. EPA adopted the same standard, but in 1991 raised the federal MCL to 0.1 mg/L. California did not follow U.S. EPA's lead and stayed with its 0.05 mg/L MCL for chromium.

Community water systems and nontransient noncommunity water systems have monitored their drinking water sources for chromium since the 1970s, and the results of monitoring have been maintained in the Department's Water Quality Monitoring (WQM) database since 1984. Of the 11,785 sources sampled for chromium through 2001, detections were reported for 1,311 sources (1,227 groundwater and 84 surface water sources), which represents 11% of sources sampled. The detection limit for purposes of reporting for chromium is 0.01 mg/L.

Regulating Hexavalent Chromium Using a MCL vs. Treatment Technique

The Department is required to establish a primary drinking water standard for hexavalent chromium under section 116365.5 of the Health and Safety Code. Primary drinking water standards are legally enforceable standards that apply to a public water system. Primary standards protect drinking water quality by limiting the level of specific contaminants that can adversely affect public health and are known or anticipated to occur in water. They take the form of a MCL, which is the maximum permissible level of a contaminant in water, or treatment technique, which may be used in lieu of establishing an MCL for a contaminant if it is not technologically or economically feasible to ascertain the level of the contaminant.

Hexavalent chromium is currently regulated as an MCL under the chromium MCL of 0.05 mg/L. Analytical methods (EPA Methods 218.6 and 218.7) are available to determine the level of hexavalent chromium in drinking water; EPA Method 218.6 has been in use since 2001. The cost of hexavalent chromium analysis is approximately $86/sample. Since hexavalent chromium is currently regulated as an MCL under the chromium MCL and it is technologically and economically feasible to ascertain the level of hexavalent chromium, the Department finds it is appropriate to regulate hexavalent chromium via an MCL instead of using the treatment technique alternative.

A Specific MCL for Hexavalent Chromium

In the late 1980s, U.S. EPA found hexavalent chromium in groundwater at contaminated Comprehensive Environmental Response, Compensation, and Liability Act of 1980 sites, commonly known as Superfund sites, in the San Fernando Valley. An overview of activities associated with its cleanup, which is important to protect drinking water supplies, is available at http://www.epa.gov/region9/superfund/chromium/index.html.

In the 1990s, the town of Hinkley in San Bernardino County had findings of hexavalent chromium in groundwater resulting from environmental releases of the chemical in the 1950s and 1960s from a nearby Pacific Gas and Electric Company facility. More information about hexavalent chromium and Hinkley is available at http://www.swrcb.ca.gov/rwqcb6/water_issues/projects/pge/index.shtml.

In February 1999, as part of its activities associated with the development of PHG, Cal/EPA OEHHA established a PHG of 2.5 µg/L (0.0025 mg/L) for chromium, reflecting a view that hexavalent chromium, a component of chromium, poses a cancer risk when ingested. In March 1999, following OEHHA's PHG for chromium, as part of the process of reviewing MCL in response to PHG, the CDHS identified the chromium MCL as one for review. In particular, the CDHS sought to determine if an MCL that is specific for hexavalent chromium would be appropriate.

As little information was available about the presence of hexavalent chromium in drinking water supplies, CDHS performed limited analyses from 1997 - 2000 to determine the fraction of chromium that is hexavalent chromium. For the 29 groundwater sources sampled, chromium concentrations ranged from 0.0034 - 0.054 mg/L, hexavalent chromium concentrations ranged from not detected - 0.035 mg/L, and the fraction of chromium that is hexavalent chromium ranged from 8 - 100%. For the one surface water source sampled four times, chromium concentrations ranged from 0.0005 - 0.0089 mg/L and hexavalent chromium concentration was not detected. For these samples, not detected indicates hexavalent chromium at <0.0005 mg/L.

In March 2000, the film “Erin Brockovich” was released. Subsequent press and political attention raised public awareness and concern about hexavalent chromium. In September 2000, the Governor signed SB 2127 (Schiff) (Chapter 868, Statutes of 2000) into law. It required CDHS to determine the levels of hexavalent chromium in drinking

water supplied by public water systems in the San Fernando Basin aquifer, and, in consultation with OEHHA, assess the associated exposures and risks to the public.

In January 2001, the CDHS adopted a regulation requiring monitoring of hexavalent chromium as an unregulated chemical to document the occurrence of hexavalent chromium in drinking water supplies. Hexavalent chromium analysis was performed using U.S. EPA Method 218.6, "Determination of Dissolved Hexavalent Chromium in Drinking Water, Groundwater, and Industrial Wastewater Effluents by Ion Chromatography" (Rev. 3.3, 1994), along with the CDHS' 2001 Unregulated Contaminant Monitoring Regulations (UCMR) Guidance on hexavalent chromium sample filtration, pH adjustment, and sample transportation and storage. The CDHS' Sanitation and Radiation Laboratory (now Drinking Water and Radiation Laboratory) established a recommended reporting limit for hexavalent chromium of 0.001 mg/L. Results of Unregulated Contaminant Monitoring Regulations monitoring from over 7,000 drinking water sources showed that about one-third of the sources had hexavalent chromium at or above the 0.001 mg/L recommended reporting limit. The sampling results showed that hexavalent chromium occurs at very low levels throughout the state.

In March 2001, Cal/EPA asked the University of California (UC) to convene an expert panel to address the carcinogenicity of ingested hexavalent chromium, and CDHS requested OEHHA to prepare a PHG for hexavalent chromium. A PHG is a contaminant concentration in drinking water that does not pose a significant risk to health, and is needed for the development of a hexavalent chromium MCL. The PHG is established by OEHHA pursuant to section 116365(c) of the Health and Safety Code, which requires OEHHA to assess the risks to public health posed by a contaminant for which the Department proposes a primary drinking water standard. OEHHA's risk assessment is required to contain "an estimate of the level of the contaminant in drinking water that is not anticipated to cause or contribute to adverse health effects, or that does not pose any significant risk to health. This level shall be known as the public health goal for the contaminant."

In May 2001, the National Toxicology Program announced it would conduct long-term rodent bioassays to evaluate the potential carcinogenicity of ingested hexavalent chromium. In July 2001, the UC expert panel met regarding carcinogenicity of ingested hexavalent chromium. In August 2001, the UC expert panel's report was released. Among its findings, the panel considered the mouse study providing the basis for the PHG's 0.2 µg/L (0.0002 mg/L) *de minimis* cancer risk for ingested hexavalent chromium to be unsuitable for such use. The UC expert panel also concluded that the current chromium MCL (0.05 mg/L) provides adequate public health protection, pending the completion of the National Toxicology Program studies. In October 2001, the Governor signed SB 351 (Ortiz) (Health and Saf. Code, § 116365.5, Chapter 602, Statutes of 2001) into law, which required CDHS to establish a hexavalent chromium MCL on or before January 1, 2004. In November 2001, OEHHA announced its withdrawal of the chromium PHG, and that a hexavalent chromium PHG would be developed by Spring 2003.

In April 2003, at a legislative hearing in Sacramento on April 2, Cal/EPA announced it would not use the UC expert panel's report in the hexavalent chromium PHG, citing concerns about panelists' possible conflicts of interest, and OEHHA indicated the draft PHG would not be available until later that year.

In August 2005, OEHHA released comments of peer reviewers of a “pre-release" draft PHG for hexavalent chromium.

In May 2007, National Toxicology Program’s reports on studies on the carcinogenesis of hexavalent chromium (dichromate dihydrate) in drinking water, which found there to be sufficient evidence of carcinogenicity in rodents, were reviewed and approved by the Board of Scientific Counselors Technical Reports Review Subcommittee.

In August 2009, OEHHA released a draft PHG for hexavalent chromium at 0.06 µg/L (0.00006 mg/L).

In September 2010, OEHHA released comments of peer reviewers of the August 2009 draft PHG, and U.S. EPA's Integrated Risk Information System released its Toxicological Review of Hexavalent Chromium (External Review Draft). In December 2010, OEHHA released a revised draft PHG for hexavalent chromium at 0.02 µg/L (0.00002 mg/L).

In January 2011, U.S. EPA released its recommendations for enhanced hexavalent chromium monitoring for public water systems. In July 2011, OEHHA released its final PHG report titled “Public Health Goal for Hexavalent Chromium (Cr VI) in Drinking Water”, which established a PHG of 0.02 µg/L (0.00002 mg/L). This PHG represents a *de minimis* lifetime cancer risk from exposure to hexavalent chromium in drinking water, based on studies in laboratory animals.

With the availability of a final PHG for hexavalent chromium, the Department was able to proceed with setting a primary drinking water standard for hexavalent chromium. Pursuant to sections 116365(a) and (b) of the Health and Safety Code, the Department is to adopt an MCL that is as close as feasible to the corresponding PHG and “that, to the extent technologically and economically feasible” avoids any significant risk to public health. In addition, the Department must consider any national primary drinking water standard that may exist, and the “technological and economic feasibility of compliance with the proposed primary drinking water standard.” The feasibility determination is to address “the costs of compliance to public water systems, customers, and other affected parties with the proposed primary drinking water standard, including the cost per customer and aggregate cost of compliance, using best available technology.”

To determine the proposed primary MCL for hexavalent chromium, the Department first established that there was no existing national primary standard, nor one soon to be developed or promulgated to be used as an additional point of reference. Next, the Department evaluated feasibility in terms of available analytical methods for detecting hexavalent chromium, monitoring costs, available treatment technologies for removal to

the proposed MCL level, and the estimated fiscal impact on California drinking water utilities to comply with the proposed standard.

Feasibility of Compliance with the Proposed MCL: Cost-Benefit Analysis

Section 116365.5(c) of the Health and Safety Code mandates that the Department establish a drinking water standard for hexavalent chromium. Section 116365 mandates that the MCL be set as close as possible to the PHG, while considering cost and technical feasibility.

Health and Safety Code section 116365's reference to considering cost and feasibility leads the Department to review:

- The availability and costs of analytical methods for determining the presence of hexavalent chromium;
- The availability and costs of appropriate technologies for mitigating its presence;
- The estimated costs to the regulated water systems for contaminant monitoring; and
- The estimated costs for treatment to the regulated water systems with sources that violate the MCL and must be treated to come into compliance.

Consequently, the Department reviewed analytical method availability, best available technologies, and conducted a comprehensive cost-benefit analysis using the monitoring data in the Department's WQM database. The Department estimated costs and benefits associated with seven possible MCL [0.001, 0.005, 0.010, 0.015, 0.020, 0.025, and 0.030 mg/L], using the identified analytical method and the best available technology weak base anion exchange (the full-scale demonstrated treatment at the time). Since the Unregulated Contaminant Monitoring Regulations recommended reporting limit for hexavalent chromium was 0.001 mg/L, it is not feasible to consider an MCL below 0.001 mg/L. Therefore, 0.001 mg/L was set as the lower boundary of the analysis. The upper boundary of the analysis was set at 0.030 mg/L, based on a review of the available information.

Based on the results of the analysis, the Department proposes to adopt an MCL at 0.010 mg/L. The cost-benefit analysis and the Department's rationale for the proposed MCL are presented below.

Monitoring Feasibility. The Department reviewed monitoring feasibility in terms of methods available, analytical detection levels, and regulated water system costs.

Analytical Method Availability and Detection Limit for Purposes of Reporting. U.S. EPA Method 218.6, "Determination of Dissolved Hexavalent Chromium in Drinking Water, Groundwater, and Industrial Wastewater Effluents by Ion Chromatography" (Rev. 3.3, 1994) is approved for hexavalent chromium analysis by the

Department's Environmental Laboratory Accreditation Program under Field of Testing 103, subgroup code 103.310. For 2001 - 2002 Unregulated Contaminant Monitoring Regulations monitoring of hexavalent chromium in drinking water, this method was used along with the CDHS' 2001 Unregulated Contaminant Monitoring Regulations Guidance on hexavalent chromium sample filtration, pH adjustment, and sample transportation and storage. In 2010 and 2011, the Department proposed alternate buffers for the preservation of water samples to be analyzed for hexavalent chromium.

The CDHS' Sanitation and Radiation Laboratory (now Drinking Water and Radiation Laboratory) established a recommended reporting limit for hexavalent chromium of 0.001 mg/L. This recommended reporting limit has been used for hexavalent chromium monitoring for several years and is being proposed as a regulatory detection limit for purposes of reporting in this regulation package.

The Department is evaluating U.S. EPA 218.7, "Determination of Hexavalent Chromium in Drinking Water by Ion Chromatography with Post-Column Derivatization and UV-Visible Spectroscopic Detection" (Ver 1.0, 2011) for use in California. This method is based on a modified version of EPA Method 218.6 and has a reporting limit of 0.00003 mg/L.

Data for Cost Estimate. The Department used the hexavalent chromium detections for active sources from the Department's WQM database for the period January 1, 2001, through December 31, 2009. Hexavalent chromium sampling data from January 3, 2001, through December 31, 2002, came from required monitoring of vulnerable sources under the Unregulated Contaminant Monitoring Regulations, which was repealed in October 2007. However, some water systems have continued to monitor their sources and submit their findings to the Department.

Note that in terms of a comprehensive identification of all possibly affected sources in California, the dataset cannot be assumed to be complete at the time of the download (October 1, 2010) for the following reasons:

- Under the Unregulated Contaminant Monitoring Regulations, only water sources identified by the CDHS as vulnerable were required to monitor. However, in the CDHS 2001 Unregulated Contaminant Monitoring Regulations Guidance, the CDHS indicated that "…all sources are considered vulnerable to hexavalent chromium unless a screening using chromium analysis indicates by a nondetect that a source is not vulnerable." Screening for hexavalent chromium using chromium analysis required a chromium reporting limit of 0.001 mg/L or better.

- Under the Unregulated Contaminant Monitoring Regulations, small water systems with fewer than 150 service connections may have applied for and received an exemption from the monitoring requirement.

- In the past, the local primacy agencies were not required to submit hard copies of data to the Department for small water systems (<200 service connections). This

data did not start entering the WQM database until electronic data transmission of the results by the laboratory was required under new reporting regulations that took effect June 14, 2001.

Therefore, some sources may be found to be contaminated during routine monitoring required under the new regulations. Depending on the level of contamination, additional monitoring and treatment may be required, which would increase the cost of compliance.

The monitoring results in the downloaded WQM data were evaluated to obtain an average level of contamination for each affected active source. The averages were then compared to the evaluated MCL to estimate the number of sources that would be in violation of each MCL. The number of affected water systems was also estimated. The water systems (and their sources) were grouped on the basis of water system size: <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections. The population served by each source was estimated using information obtained from the Department's Permits, Inspections, Compliance, Monitoring and Enforcement (PICME) database. The number of groundwater and surface sources used by water system size was also obtained from the PICME database.

Monitoring Costs (routine, increased, and treated) for All Evaluated MCL. The procedure for estimating routine, increased, and treated water monitoring costs for all evaluated MCL is as follows.

Monitoring Status of Sources. Under the Unregulated Contaminant Monitoring Regulations, community water systems and nontransient noncommunity water systems with sources designated vulnerable to hexavalent chromium contamination were required to conduct monitoring consisting of two samples in one year from January 3, 2001, through December 31, 2002. Results of Unregulated Contaminant Monitoring Regulations monitoring from over 7,000 drinking water sources showed hexavalent chromium at or above the 0.001 mg/L recommended reporting limit in about one-third of the sources.

Proposed Monitoring Frequencies.

Routine. A water system with drinking water sources previously not monitored or with sources showing hexavalent chromium equal to or below the proposed MCL would be required to monitor those sources once every three years (groundwater) and once every year (surface water).

Increased. A water system with one or more drinking water sources showing hexavalent chromium above the proposed MCL would be required to monitor those sources quarterly, until two consecutive quarters of data (for groundwater) or four consecutive quarters of data (for surface water) are below the proposed MCL.

Treated. A water system treating a drinking water source for hexavalent chromium to comply with the proposed MCL would be required to monitor the treated water (i.e., treatment effluent) monthly.

Analytical Costs. To obtain analytical costs, in July 2012, the Department surveyed 15 commercial laboratories accredited by the Environmental Laboratory Accreditation Program for analyzing hexavalent chromium in drinking water. The average cost per sample was $86, with the results ranging from $30 to $200. The average value of $86 was used to estimate monitoring costs. The same 15 laboratories were also surveyed for the cost of analyzing chromium in drinking water. The average cost per sample was $24, with the results ranging from $15 to $50.

Monitoring Costs. As of September 2012, the number of groundwater and surface water sources, by water system size, are shown in table 1. Sources previously not monitored or sources showing hexavalent chromium equal to or below the proposed MCL will need to perform routine monitoring. Sources in violation of the proposed MCL will need to perform increased monitoring, install treatment, and perform treated water monitoring.

Table 1
Number of Sources in PICME by Water System Size
(In Terms of Service Connection Group)

Source Type	<200	200 - <1,000	1,000 - <10,000	≥10,000
Groundwater	4,608	1,014	1,960	3,375
Surface Water	385	151	150	184
Subtotal	4,993	1,165	2,110	3,559
Total	11,827			

Routine and Increased. The estimated source monitoring costs, by water system size, are shown in table 2; the costs differ with each evaluated MCL, since the number of affected sources would vary. For the proposed MCL of 0.010 mg/L, the annualized cost for routine monitoring is approximately $163,000, $41,700, $66,800, and $108,200 for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. The annual cost for increased monitoring is approximately $22,300, $4,500, $27,900, and $52,300 for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. The routine and increased monitoring costs start during year 1 and are expected to continue in years 2 and 3. Increased monitoring costs may increase depending on the results of routine monitoring.

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Table 2
Estimated Source Monitoring Costs
for Evaluated Hexavalent Chromium MCL by Water System Size
(in Terms of Service Connection Group)

MCL (mg/L)	No. of Affected Sources				Monitoring Cost ($) (for Year 1+)			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
Routine Monitoring (GW = 1 sample/3 years; SW – 1 sample/year)[(a)]								
Groundwater								
0.001	4,188	889	1,400	2,005	120,000 (annualized)	25,500 (annualized)	40,100 (annualized)	57,500 (annualized)
0.005	4,454	966	1,768	2,954	128,000 (annualized)	27,700 (annualized)	50,700 (annualized)	84,700 (annualized)
0.010	4,544	1,001	1,879	3,223	130,000 (annualized)	28,700 (annualized)	53,900 (annualized)	92,400 (annualized)
0.015	4,574	1,009	1,920	3,310	131,000 (annualized)	28,900 (annualized)	55,000 (annualized)	94,900 (annualized)
0.020	4,594	1,013	1,941	3,342	132,000 (annualized)	29,000 (annualized)	55,600 (annualized)	95,800 (annualized)
0.025	4,605	1,014	1,951	3,356	132,000 (annualized)	29,100 (annualized)	55,900 (annualized)	96,200 (annualized)
0.030	4,606	1,014	1,955	3,366	132,000 (annualized)	29,100 (annualized)	56,000 (annualized)	96,500 (annualized)
Surface Water								
0.001	381	146	149	182	32,800	12,600	12,800	15,700
0.005	383	150	150	184	32,900	12,900	12,900	15,800
0.010	384	151	150	184	33,000	13,000	12,900	15,800
0.015	384	151	150	184	33,000	13,000	12,900	15,800
0.020	385	151	150	184	33,100	13,000	12,900	15,800
0.025	385	151	150	184	33,100	13,000	12,900	15,800
0.030	385	151	150	184	33,100	13,000	12,900	15,800
Increased Monitoring (4 samples/year for sources >MCL)								
Groundwater								
0.001	420	125	560	1,370	144,000	43,000	193,000	471,000
0.005	154	48	192	421	53,000	16,500	66,000	145,000
0.010	64	13	81	152	22,000	4,500	27,900	52,300
0.015	34	5	40	65	11,700	1,700	13,800	22,400
0.020	14	1	19	33	4,800	300	6,500	11,400
0.025	3	0	9	19	1,000	---	3,100	6,500
0.030	2	0	5	9	700	---	1,700	3,100
Surface Water								
0.001	4	5	1	2	1,400	1,700	300	700
0.005	2	1	0	0	700	300	---	---
0.010	1	0	0	0	300	---	---	---
0.015	1	0	0	0	300	---	---	---
0.020	0	0	0	0	---	---	---	---
0.025	0	0	0	0	---	---	---	---
0.030	0	0	0	0	---	---	---	---

(a) Monitoring costs for GW sources were annualized over three years.

Treated Water. The estimated treated water monitoring cost, by water system size, is shown in table 3; the cost differs with each evaluated MCL, since the number of affected sources would vary. For the proposed MCL of 0.010 mg/L, the

annual cost for treated water monitoring is approximately $67,000, $13,400, $83,600, and $157,000 for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. The treated water monitoring cost starts during year 1 and is expected to continue in years 2 and 3. Treated water monitoring cost may increase depending on the results of increased monitoring.

Table 3 also shows that if the total number of sources affected at 0.010 mg/L is used as a base, the number of sources affected is approximately 2.6 and 8 times higher as the MCL becomes more stringent.

Table 3
Estimated Treated Water Monitoring Cost
for Evaluated Hexavalent Chromium MCL by Water System Size
(In Terms of Service Connection Group)

MCL (mg/L)	No. of Affected Sources				Monitoring Cost ($) (for Year 1+)			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
Treated Water Monitoring (12 samples/year for sources >MCL)								
Groundwater								
0.001	420	125	560	1,370	433,000	129,000	578,000	1,414,000
0.005	154	48	192	421	159,000	49,500	198,000	434,000
0.010	64	13	81	152	66,000	13,400	83,600	157,000
0.015	34	5	40	65	35,100	5,200	41,300	67,100
0.020	14	1	19	33	14,400	1,000	19,600	34,100
0.025	3	0	9	19	3,100	---	9,300	19,600
0.030	2	0	5	9	2,100	---	5,200	9,300
Surface Water								
0.001	4	5	1	2	4,100	5,200	1,000	2,100
0.005	2	1	0	0	2,100	1,000	---	---
0.010	1	0	0	0	1,000	---	---	---
0.015	1	0	0	0	1,000	---	---	---
0.020	0	0	0	0	---	---	---	---
0.025	0	0	0	0	---	---	---	---
0.030	0	0	0	0	---	---	---	---

Treatment Feasibility. The Department reviewed treatment feasibility in terms of treatment technology availability and treatment costs for regulated water systems.

Treatment Technology Availability. Pursuant to section 116370 of the Health and Safety Code, the Department has determined three treatment technologies as best available technologies: reduction/coagulation/filtration, ion exchange, and reverse osmosis (see discussion under section 64447.2). The Department used weak base anion exchange treatment with disposable resin as the basis for its estimate of costs associated with treating sources in violation of the MCL, because it was the only full-scale demonstrated treatment at the time.

Treatment Costs. A water system with a drinking water source in violation of the hexavalent chromium MCL would be required to treat the source to come into

compliance and would incur both capital and operation and maintenance costs. The following assumptions were used in the cost analysis:

- Water quality data from the Department's WQM database provides a sufficient starting basis for a cost analysis for the proposed regulations;
- Each affected source requiring treatment will have its own treatment plant;
- All sources are disinfected; water systems are monitoring in accordance with the U.S. EPA Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules;
- Average day demand = 150 gallons/person/day; peaking factor for maximum day demand = 1.5; and
- Water systems that need to install treatment to comply with the proposed hexavalent chromium MCL will install weak base anion exchange with disposable resin.

Capital and Operation and Maintenance (O&M) Costs. To estimate capital and O&M costs, the Department used the approach developed for the City of Glendale by ARCADIS, U.S., for weak base anion exchange treatment with disposable resin to remove hexavalent chromium, with the following changes made:

- Design raw water quality was assumed to have no volatile organic chemicals (VOC);
- Capital and O&M costs excluded off-gas treatment of VOC using vapor phase granular activated carbon;
- O&M costs excluded compliance monitoring from O&M analytical costs, as the cost of compliance monitoring is determined separately; and
- After reducing O&M costs as described above, O&M costs were then multiplied by an adjustment factor of 0.8 to reflect (a) a utilization rate based on average flow instead of design flow (peaking factor = 1.5) and (b) a lower resin changeout trigger (i.e., use 80% of proposed hexavalent chromium MCL instead of exceeding the proposed hexavalent chromium MCL, which increases costs by 20%; trigger level factor = 1.2); adjustment factor = 1.2/1.5 = 0.8.

It should be noted that pH adjustment to 6.0 is a critical component for weak base anion operation (weak base anion resin used = Dow, Amberlite^{TM} PWA7); pH adjustment in the finished water is also needed for corrosion control. These additional costs, as well as the cost of residual disposal, are included in the capital and O&M costs.

To amortize the total capital costs and determine the estimated annualized capital costs to install treatment, the Department used the capital recovery method with an interest rate (i in decimal format) of 7% (i.e., 0.07) and an amortization period (n) of 20 years, where annualized capital cost = (initial capital cost) x (amortization factor).

$$\textit{Amortization factor} = \frac{i \times (1 + i)^n}{[(1 + i)^n - 1]} = 0.0944$$

The estimated total capital costs, annualized capital costs, and annual O&M costs (including residual disposal and operational monitoring), by water system size, are shown in table 4. For the proposed MCL of 0.010 mg/L, the Department estimates that 65, 13, 81, and 152 sources for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively, would need to be treated for compliance with the proposed MCL. Some of these water systems may be able to meet the MCL by blending their drinking water supplies as already occurs during drinking water distribution, at minimal cost. However, if these sources were to be treated using weak base anion exchange with disposable resin, the annualized treatment (capital and O&M) costs are approximately $13.5 million, $3.8 million, $36.9 million, and $101.2 million for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. The treatment costs start during year 1 and are expected to continue in years 2 and 3.

It should be noted that treatment costs incurred by a given water system will vary depending on many site-specific parameters, such as the level of hexavalent chromium in the source, physical qualities of the water and any other regulated chemicals present, type and method of residual disposal, availability of land, and cost of construction labor and water treatment plant operating staff.

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Table 4
Estimated Treatment Costs for Sources >MCL
for Evaluated Hexavalent Chromium MCL by Water System Size
(In Terms of Service Connection Group)

MCL (mg/L)	No. of Affected Sources				Total Capital Costs ($M)				Annualized Capital Costs ($M)				Annual O&M Costs ($M)				Total Annualized Treatment Costs for Sources >MCL ($M) (for Year 1+)[a]			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
Groundwater																				
0.001	420	125	560	1,370	437.4	176.2	1,484.5	5,667.1	41.3	16.6	140.1	535.0	51.9	17.9	159.5	712.2	93.2	34.5	299.7	1,247.2
0.005	154	48	192	421	154.2	65.0	501.3	1,607.5	14.6	6.1	47.3	151.7	18.4	6.3	46.2	164.4	32.9	12.4	93.6	316.1
0.010	64	13	81	152	64.8	21.4	213.4	570.8	6.1	2.0	20.1	53.9	7.4	1.8	16.7	47.3	13.5	3.8	36.9	101.2
0.015	34	5	40	65	32.9	8.3	114.9	246.2	3.1	0.8	10.8	23.2	3.8	0.7	8.8	19.5	7.0	1.4	19.7	42.8
0.020	14	1	19	33	14.1	1.3	54.5	129.8	1.3	0.1	5.1	12.3	1.6	0.1	4.0	9.9	2.9	0.2	9.1	22.2
0.025	3	0	9	19	2.7	---	24.9	86.8	0.3	---	2.4	8.2	0.3	---	1.8	6.4	0.6	---	4.1	14.6
0.030	2	0	5	9	1.8	---	16.6	54.3	0.2	---	1.6	5.1	0.2	---	1.1	3.9	0.4	---	2.6	9.0
Surface Water																				
0.001	4	5	1	2	4.1	9.1	3.7	16.6	0.4	0.8	0.3	1.6	0.5	1.0	0.4	2.4	0.9	1.8	0.8	4.0
0.005	2	1	0	0	1.8	0.9	---	---	0.2	0.09	---	---	0.2	0.1	---	---	0.4	0.2	---	---
0.010	1	0	0	0	0.9	---	---	---	0.08	---	---	---	0.1	---	---	---	0.2	---	---	---
0.015	1	0	0	0	0.9	---	---	---	0.08	---	---	---	0.1	---	---	---	0.2	---	---	---
0.020	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
0.025	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
0.030	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(a) Totals may not add due to rounding

Estimated Total Annualized Costs (Monitoring and Treatment). The estimated total annualized monitoring and treatment costs, by water system size, are shown in table 5. For the proposed MCL of 0.010 mg/L, the total annualized costs are approximately $13.8 million, $3.8 million, $37 million, and $101.4 million for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. The total annualized costs to California's drinking water systems at 0.005 mg/L are approximately 3 times higher than those at 0.010 mg/L, while those at 0.001 mg/L are approximately 11 times higher. The total annualized costs start during year 1 and are expected to continue in years 2 and 3.

As previously noted, the set of monitored sources consists mainly of those designated vulnerable to hexavalent chromium contamination or those from water systems that did not receive a monitoring exemption. Any additional monitoring costs due to hexavalent chromium detected during routine monitoring of sources that did not perform Unregulated Contaminant Monitoring Regulations monitoring would be relatively insignificant; treatment costs would be more significant, but difficult to estimate given the lack of data.

The hexavalent chromium monitoring data gap is primarily from small water systems (i.e., those with less than 200 service connections). A review of the small water system monitoring data shows that approximately 60% of the sources have not been monitored for hexavalent chromium. For sources previously not monitored, the rate of detection may be comparable to that for sources previously monitored. The number of sources exceeding an evaluated MCL may increase, with the impact increasing as the MCL becomes more stringent.

Treatment costs for small water systems are significantly higher than those for large water systems (see following discussion under Economic Feasibility). Applying a similar rate of expected noncompliance as those that did monitor for hexavalent chromium, the treatment costs would be no less than what is presented and may, in fact, have an even greater impact on water systems, particularly small water systems.

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Table 5
Estimated Total Annualized Treatment and Monitoring Costs for Sources >MCL for Evaluated Hexavalent Chromium MCL by Water System Size
(In Terms of Service Connection Group)

MCL (mg/L)	No. of Affected Sources				Annualized Capital Costs ($M)				Annual O&M Costs ($M)				Annual Monitoring Costs ($M)[a]				Total Annualized Costs ($M) (for Year 1+)[b]			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
Groundwater																				
0.001	420	125	560	1,370	41.3	16.6	140.1	535.0	51.9	17.9	159.5	712.2	0.6	0.2	0.8	1.9	93.8	34.7	300.4	1,249.1
0.005	154	48	192	421	14.6	6.1	47.3	151.7	18.4	6.3	46.2	164.4	0.2	0.07	0.3	0.6	33.1	12.5	93.8	316.7
0.010	64	13	81	152	6.1	2.0	20.1	53.9	7.4	1.8	16.7	47.3	0.09	0.02	0.1	0.2	13.6	3.8	37.0	101.4
0.015	34	5	40	65	3.1	0.8	10.8	23.2	3.8	0.7	8.8	19.5	0.05	0.007	0.06	0.09	7.0	1.4	19.7	42.9
0.020	14	1	19	33	1.3	0.1	5.1	12.3	1.6	0.1	4.0	9.9	0.02	0.001	0.03	0.05	2.9	0.2	9.2	22.2
0.025	3	0	9	19	0.3	---	2.4	8.2	0.3	---	1.8	6.4	0.004	---	0.01	0.03	0.6	---	4.1	14.6
0.030	2	0	5	9	0.2	---	1.6	5.1	0.2	---	1.1	3.9	0.003	---	0.007	0.01	0.4	---	2.7	9.0
Surface Water																				
0.001	4	5	1	2	0.4	0.9	0.3	1.6	0.5	1.0	0.4	2.4	0.006	0.007	0.001	0.003	0.9	1.8	0.8	4.0
0.005	2	1	0	0	0.2	0.09	---	---	0.2	0.1	---	---	0.003	0.001	---	---	0.4	0.2	---	---
0.010	1	0	0	0	0.08	---	---	---	0.1	---	---	---	0.001	---	---	---	0.2	---	---	---
0.015	1	0	0	0	0.08	---	---	---	0.1	---	---	---	0.001	---	---	---	0.2	---	---	---
0.020	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
0.025	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
0.030	0	0	0	0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

(a) Consists of increased source water monitoring and treated water monitoring.
(b) Totals may not add due to rounding.

Economic Feasibility. The Department reviewed economic feasibility for the regulated water systems in terms of estimated annual cost per system, source, service connection, and theoretical excess cancer cases reduced.

***Estimated Annual Cost per System*.** The estimated annual cost per system, by water system size, is shown in table 6. For the proposed MCL of 0.010 mg/L, the cost per system is approximately $251,000, $378,000, $1,276,000, and $2,983,000 for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. At 0.001 mg/L, the total number of water systems that would be impacted is approximately more than 5 times as many as would be at 0.010 mg/L; for the water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, approximately 6.2, 7.2, 5.5, and 3.6 times as many water systems would be impacted, respectively. Generally, larger water system costs are greater due to volume of flow and amount of residual disposed.

Table 6
Estimated Annual Cost per System
for Evaluated Hexavalent Chromium MCL by Water System Size
(In Terms of Service Connection Group)

MCL (mg/L)	No. of Affected Systems				Annual Cost Per System ($)			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
0.001	340	72	160	122	278,000	507,000	1,883,000	10,271,000
0.005	130	31	60	64	258,000	409,000	1,564,000	4,949,000
0.010	55	10	29	34	251,000	378,000	1,276,000	2,983,000
0.015	28	4	18	20	257,000	362,000	1,095,000	2,143,000
0.020	13	1	13	12	225,000	241,000	706,000	1,850,000
0.025	3	0	6	10	198,000	---	686,000	1,461,000
0.030	2	0	3	7	197,000	---	885,000	1,292,000

***Estimated Annual Cost per Source*.** The estimated annual cost per source, by water system size, is shown in table 7. For the proposed MCL of 0.010 mg/L, the cost per source is approximately $212,000, $291,000, $457,000, and $667,000 for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. The range is somewhat broad, reflecting a number of variables (e.g., level of contamination, volume of treated flow, and type and volume of waste produced). Again, larger water system costs are generally greater due to volume of flow and amount of residual disposed.

Table 7
Estimated Annual Cost per Source
for Evaluated Hexavalent Chromium MCL by Water System Size
(In Terms of Service Connection Group)

MCL (mg/L)	No. of Affected Sources				Annual Cost Per Source ($)			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
0.001	424	130	561	1,372	223,000	281,000	537,000	913,000
0.005	156	49	192	421	215,000	259,000	489,000	752,000
0.010	65	13	81	152	212,000	291,000	457,000	667,000
0.015	35	5	40	65	206,000	289,000	493,000	660,000
0.020	14	1	19	33	209,000	241,000	483,000	673,000
0.025	3	0	9	19	198,000	---	457,000	769,000
0.030	2	0	5	9	197,000	---	531,000	1,005,000

***Estimated Annual Cost per Service Connection*.** The estimated annual cost per service connection, by system size, is shown in table 8. For the proposed MCL of 0.010 mg/L, the cost per service connection is approximately $5,630, $857, $326, and $64 for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively, with the cost for compliance with the proposed MCL estimated to be $5,630 a year for the smallest water system. The table shows the impact that the proposed regulation will have on the smaller water systems and their customers, relative to large water systems. Costs for smaller water systems are greater due to a lack of economy of scale.

Table 8
Estimated Annual Cost per Service Connection
for Evaluated Hexavalent Chromium MCL by Water System Size
(In Terms of Service Connection Group)

MCL (mg/L)	No. of Service Connections				Annual Cost Per Service Connection ($)			
	<200	200 - <1,000	1,000 - <10,000	≥10,000	<200	200 - <1,000	1,000 - <10,000	≥10,000
0.001	13,225	29,979	623,016	4,181,888	7,160	1,220	483	300
0.005	5,023	11,683	235,700	2,696,321	6,680	1,090	398	117
0.010	2,453	4,418	113,550	1,595,790	5,630	857	326	64
0.015	1,227	1,101	70,351	1,148,896	5,870	1,310	280	37
0.020	535	232	48,165	904,159	5,470	1,040	190	25
0.025	140	0	22,354	862,913	4,240	---	184	17
0.030	95	0	13,269	796,447	4,140	---	200	11

***Estimated Annual Cost per Theoretical Excess Cancer Cases Reduced*.** For the proposed MCL of 0.010 mg/L, the estimated annual cost per theoretical excess cancer cases reduced is approximately $122 million, $38 million, $17 million, and $11 million for water systems serving <200, 200 - <1,000, 1,000 - <10,000, and ≥10,000 service connections, respectively. This shows the impact that the proposed regulation will have on the smaller water systems and their customers, relative to large water systems - costs for smaller water systems in relation to the public health benefit they would achieve by reductions in the MCL are greater than for large systems. The

Department's estimate of benefits (i.e. theoretical excess cancer cases avoided as a function of the evaluated hexavalent chromium MCLs) found that for the smaller water systems, no more than 0.3 cases might be avoided for any of the seven evaluated MCLs. However, the estimated reduction in population exposed to a hexavalent chromium concentration exceeding the proposed MCL of 0.010 mg/L would lead to an estimated total of approximately 12 theoretical cancer cases avoided per year statewide.

Pursuant to section 116365 of the Health and Safety Code and its mandate to place primary emphasis on the protection of public health, the Department is proposing an MCL of 0.010 mg/L be adopted for hexavalent chromium.

Section 64432, Monitoring and Compliance – Inorganic Chemicals. The purpose of this section is to establish the monitoring and compliance requirements for inorganic chemicals in drinking water, applicability to regulated water systems, and to define the detection limit for purposes of reporting for all chemicals with MCL.

Subsections (a) and (b) would be revised to correct use of upper/lower case.

Subsection (b)(1) would be added to allow groundwater monitoring for an inorganic chemical (other than asbestos, nitrate/nitrite, and perchlorate), performed in accordance with section 64432 and no more than two years prior to the effective date of the MCL, to be used to satisfy the monitoring required within six months following the effective date of the MCL. The Department proposes to allow "grandfathering" of groundwater monitoring to help reduce sampling and analytical costs and allow a water system to remain on the same monitoring year within the 3-year compliance period. "Grandfathering" of surface water monitoring is not necessary because surface water sources are monitored once a year as a minimum for inorganic chemicals.

Subsection (b)(2) would be added to allow screening for hexavalent chromium using chromium provided the water system has completed initial or "grandfathered" hexavalent chromium monitoring under subsection (b) or (b)(1), respectively, and routine monitoring of chromium under subsection (c) shows that the chromium result is less than the chromium detection limit for purposes of reporting. The Department proposes to allow screening of hexavalent chromium using chromium to help reduce analytical costs; chromium analysis is less costly ($24/sample for chromium vs. $86/sample for hexavalent chromium; average cost based on a July 2012 telephone survey of commercial laboratories) and not subject to the short holding time constraints of the hexavalent chromium methods.

Subsection (c) would be revised to correct punctuation and use of upper/lower case.

Subsection (d) would be revised to correct use of upper/lower case.

Table 64432-A would be revised to adopt a detection limit for purposes of reporting for hexavalent chromium. A standardized detection limit for purposes of reporting would ensure that reported analytical results for hexavalent chromium would all be based on

the same detection level (i.e., all non-detected results would have the same meaning). The Department proposes to add hexavalent chromium with its detection limit for purposes of reporting of 0.001 mg/L. The detection limit for purposes of reporting should be achievable within suitable limits of precision and accuracy by at least 75% of the commercial laboratories in the state. All inorganic chemicals with MCL have regulatory detection limit for purposes of reporting. The proposed hexavalent chromium detection limit for purposes of reporting of 0.001 mg/L is based on input from the Department's Drinking Water and Radiation Laboratory (previous discussion under Analytical Method Availability and Detection Limit for Purposes of Reporting) and the Department's experience with Unregulated Contaminant Monitoring Regulations monitoring for hexavalent chromium as an unregulated chemical. This is the same recommended reporting limit that has been used since 2001 for unregulated chemical monitoring. A detection limit for purposes of reporting of 0.001 mg/L is adequate for determining, with confidence, the presence of hexavalent chromium and compliance with the proposed hexavalent chromium MCL of 0.010 mg/L. Analytical results at concentrations below the detection limit for purposes of reporting of 0.001 mg/L may be submitted to the Department when the laboratory has associated quality assurance data for their results.

Under the U.S. EPA Unregulated Contaminant Monitoring Regulations3, occurrence data will be collected for hexavalent chromium. Public water systems serving more than 10,000 persons and a representative sample of 800 public water systems serving 10,000 or fewer persons will be required to monitor for hexavalent chromium during a 12-month period between January 2013 through December 2015. Analysis is to be performed using U.S. EPA 218.7, which is based on a modified version of EPA Method 218.6. EPA Method 218.7 has a reporting limit of 0.00003 mg/L. The Department is evaluating EPA Method 218.7 for use in California. The occurrence data collected for hexavalent chromium under the U.S. EPA Unregulated Contaminant Monitoring Regulations3 will be considered during the Department's review of its MCL, which is required to be conducted every five years under section 116365(g) of the Health and Safety Code.

Subsection (h)(2)(A) would be revised to correct use of upper/lower case and punctuation.

Subsection (h)(2)(B) would be revised to correct use of upper/lower case.

Subsections (m) and (n) would be revised to correct reference to a subsection and delete redundant text.

Subsection (o) would be revised to correct use of upper/lower case.

Subsection (o)(1) would be revised to correct grammar.

Subsection (o)(2) would be revised to correct punctuation.

Subsection (p) would be added to establish a directive for a distribution system chromium speciation study. Chromium in drinking water occurs in two primary valence states: trivalent chromium and hexavalent chromium. Trivalent chromium may be converted to hexavalent chromium by oxidation with a disinfectant. Without further studies on distribution system speciation conversion and considering the fact that the degree to which such a conversion may occur appears to be dependent on a number of water-system-specific factors, the Department believes that prescriptive criteria could not be developed at this time without further information. Water systems may need to investigate the potential for re-oxidation of trivalent chromium to hexavalent chromium due to post-treatment disinfection or disinfection boosting in the distribution system and the information gathered would be useful in developing future distribution system regulatory criteria, if necessary.

Title 22, CCR, Division 4, Chapter 15, Article 12

Section 64447.2, Best Available Technologies (BAT) – Inorganic Chemicals. The purpose of this section is to identify the best available technologies for reducing the level of inorganic chemicals in drinking water to comply with the MCL, pursuant to section 116370 of the Health and Safety Code.

The first paragraph of section 64447.2 would be revised to correct use of upper/lower case.

Table 64447.2-A would be revised to adopt reduction/coagulation/filtration, ion exchange, and reverse osmosis as best available technologies for hexavalent chromium, include common alternative terminology, and correct use of upper/lower case. The rationale for the hexavalent chromium best available technologies is provided below.

The current best available technologies established by U.S. EPA for chromium (trivalent chromium and hexavalent chromium) and adopted by the Department under section 64447.2 are coagulation/filtration, ion exchange, and reverse osmosis. Studies evaluating the performance of the current best available technologies with respect to chromium or hexavalent chromium show that coagulation/filtration (preceded by a reduction step), ion exchange, and reverse osmosis are capable of reducing hexavalent chromium levels to below the proposed hexavalent chromium MCL of 0.010 mg/L. Based on the Department's review, the following technologies are proposed as the best available technologies for hexavalent chromium: reduction/coagulation/filtration, ion exchange, and reverse osmosis.

The Department recognizes that there are other potential treatment technologies being investigated. However, it should be noted that this does not preclude a water system from receiving an amended domestic water supply permit that allows the use of the treatment technology.

Title 22, CCR, Division 4, Chapter 15, Article 18

Section 64463, General Public Notification Requirements. The purpose of this section is to establish which public water systems must comply with the public notification requirements; require submission of notices to the Department for approval prior to distribution; establish wholesaler and retailer responsibility for public notice distribution; allow public notice distribution to a portion of the distribution system that is physically or hydraulically isolated; and establish public notification requirements for new customers.

Subsection (b) would be revised to clarify that notices for Department review and approval are to be in English, consistent with AB 938. AB 938, which established section 116450(h)(5) of the Health and Safety Code, specifies that the Department is not required to review or approve notices in any language other than English.

Subsection (d) would be revised to correct reference to a section, use of plural, and punctuation.

Subsection (e) would be revised to correct reference to a section.

Section 64465, Public Notice Content and Format. The purpose of this section is to establish the primary content (information and language) and format requirements of a public notice when a MCL, Maximum Residual Disinfectant Levels, regulatory action level, or treatment technique for a contaminant has been violated; the language is intended to inform the public about the possible health effects associated with the contaminant.

Subsection (a)(10) would be revised to correct punctuation.

Subsection (c) would be revised to reorganize existing bilingual requirements as Tier 2 and 3 public notice bilingual requirements under new paragraphs (2)(A) through (2)(B)2. The reorganization was necessary as a result of the requirements, unique to Tier 1 public notices, established via AB 938.

Subsection (c)(1)(A) through (B) would be added to adopt Tier 1 public notice bilingual requirements consistent with AB 938. AB 938 established section 116450(h)(5) of the Health and Safety Code, most significantly requiring the entire Tier 1 public notice be provided in Spanish and the language of any non-English-speaking group that exceeds 10 percent of the persons served by the public water system, thereby increasing the ease at which crucial public health information related to drinking water contamination is disseminated to non-English-speaking groups.

Subsection (c)(3) would be added to ensure that those public water systems subject to the Dymally-Alatorre Bilingual Services Act are aware that complying with the Department's Tier 1, 2, and 3 public notices does not ensure compliance with the requirements of the Dymally-Alatore Bilingual Services Act, if applicable.

Appendix 64465-A would be revised to correct use of upper/lower case in the column heading and correct the spelling of "*E. coli*".

Appendix 64465-B would be revised to correct use of upper/lower case in the column heading.

Appendix 64465-C would be revised to adopt public notification (health effects) language for a total radium MCL violation. The language is proposed for conformance with the language for other chemicals with primary MCL to be included in the notice sent to the public if the water system violates the MCL. The U.S. EPA initiated this specific language requirement in regulations for primary MCL in 1991; as mandated, the Department has adopted language for all federal MCL and, for consistency, has adopted language for state mandated MCL as well. In 2006, the Department revised its regulations pertaining to radionuclides, which included a requirement that nontransient noncommunity water systems monitor for compliance with the combined radium MCL via total radium monitoring. However, the Department inadvertently did not include public notification (health effects) language for total radium.

Appendix 64465-D would be revised to adopt public notification (health effects) language for a hexavalent chromium MCL violation. The language is proposed for conformance with the language for other chemicals with primary MCL to be included in the notice sent to the public if the water system violates the MCL. The U.S. EPA initiated this specific language requirement in regulations for primary MCL in 1991; as mandated, the Department has adopted language for all federal MCL and, for consistency, has adopted language for state mandated MCL as well.

Appendix 64465-E would be revised to delete the extra space after the hyphen in the public notification (health effects) language for 1,2-dichloroethane.

Appendix 64465-F would be revised to correct spelling and use of plural in the public notification (health effects) language for Bentazon.

Appendix 64465-G would be revised to correct use of upper/lower case in the column heading and delete unnecessary punctuation for chlorine dioxide (distribution system samples).

Appendix 64465-H would be revised to correct use of upper/lower case in the column heading.

Title 22, CCR, Division 4, Chapter 15, Article 20

Section 64481, Content of the Consumer Confidence Report. The purpose of this section is to establish the primary content and format requirements of the Consumer Confidence Report, including the language to be communicated to the public when a contaminant has been detected. The language is intended to inform the public of the major origins, or source, of the contaminant.

Subsection (d)(2)(D)3. would be revised to delete an obsolete Consumer Confidence Report reporting requirement. Under the federal Stage 2 Disinfectants and Disinfection Byproducts Rule, Individual Distribution System Evaluation (IDSE) samples for total trihalomethanes (TTHM) and haloacetic acids (five) (HAA5) standard monitoring were required to be collected in 2008, 2009, or 2010, depending on size of water system population served [40 CFR part 141.601]. The Consumer Confidence Report required the results to be included in the Consumer Confidence Report when determining the range of TTHM and HAA5 results reported for the calendar year the IDSE samples were taken. Since IDSE sampling is no longer required, the Consumer Confidence Report reporting requirement to include IDSE sample results is obsolete.

Subsection (d)(2)(I) would be revised for consistency with the types of contaminants referenced in appendix 64481-A.

Subsection (g)(2) would be revised to reference where the current public notification (health effects) language may be found and delete obsolete public notification (health effects) language.

Subsection (l) would be revised for consistency with changes made to public notice bilingual requirements under section 64465(c).

Appendix 64481-A would be revised to adopt Consumer Confidence Report (major origins in drinking water) language for total radium and hexavalent chromium. The language is proposed for conformance with the language for other chemicals with primary MCL to be included in Consumer Confidence Reports sent by water systems to their consumers. The U.S. EPA initiated this specific language requirement in regulations for primary MCL in 1998; as mandated, the Department has adopted language for all federal MCL and, for consistency, has adopted language for state-mandated MCL as well. In 2006, the Department revised its regulations pertaining to radionuclides, which included a requirement that nontransient noncommunity water systems monitor for compliance with the combined radium MCL via total radium monitoring. However, the Department inadvertently did not include Consumer Confidence Report (major origins in drinking water) language for total radium.

Title 22, CCR, Division 4, Chapter 15.5, Article 1

Section 64530, Applicability of This Chapter.

Subsection (c) and table 64530-A would be revised to correct the page numbers referenced in the *Federal Register*.

Title 22, CCR, Division 4, Chapter 15.5, Article 3

Section 64534, General Monitoring Requirements.

Subsection (a) would be revised to correct the page numbers referenced in the *Federal Register*.

Section 64534.2, Disinfection Byproducts Monitoring. The purpose of this section is to establish the monitoring requirements for disinfection byproducts in drinking water.

Subsection (a)(2) would be revised to correct a typographical error.

Subsection (c)(2) would be revised to delete an obsolete source water bromide monitoring requirement to remain on reduced bromate monitoring. Under the federal Stage 2 Disinfectants and Disinfection Byproducts Rule, beginning April 1, 2009, the criterion to qualify for and remain on reduced bromate monitoring was changed from demonstrating low levels of bromide in the source water to demonstrating low levels of bromate in the finished water, now that more sensitive bromate methods are available [40 CFR part 141.132(b)(3)(ii)(A)]. Since source water bromide monitoring is no longer required, the monitoring requirement in subsection (c)(2) is obsolete.

Subsections (c)(3) and (c)(3)(A) would be revised, as a result of the revision to subparagraph (B), to delete unnecessary punctuation, delete the unnecessary subparagraph (A) designation, correct use of upper/lower case, and delete unnecessary text.

Subsection (c)(3)(B) would be revised to delete an obsolete criterion to resume routine bromate monitoring, based on average source water bromide concentration. Under the federal Stage 2 Disinfectants and Disinfection Byproducts Rule, beginning April 1, 2009, the criterion to resume routine bromate monitoring was changed from bromide levels in the source water to bromate levels in the finished water for the reasons previously discussed under subsection (c)(2). Since source water bromide monitoring is no longer required, the criterion based on source water bromide level is obsolete.

Subsection (d)(2) would be revised to correct the page number referenced in the *Federal Register*.

Section 64534.8, Monitoring Plans.

Subsection (b)(3) would be revised to correct reference to paragraphs.

Subsections (d)(1) and (2) would be revised to correct the page numbers referenced in the *Federal Register* and update *Federal Register* citations.

Title 22, CCR, Division 4, Chapter 15.5, Article 4

Section 64535.2, Determining Disinfection Byproduct Compliance. The purpose of this section is to establish the disinfection byproduct compliance requirements during the first and subsequent years of monitoring.

Subsections (a)(1), (2), and (3) would be revised to provide compliance determinations consistent with U.S. EPA language [40 CFR part 141.133.(a)(3)] (i.e., the water system shall not exceed the MCL, not a multiple of the MCL).

Subsection (b) would be revised to correct a typographical error.

Subsection (d) would be revised to correct use of plural.

Subsections (d)(2) and (3) would be revised to clarify where a regulatory requirement may be found by adding the word “section”.

Section 64535.4, Determining Disinfectant Residuals Compliance. The purpose of this section is to establish the disinfectant residual compliance requirements during the first and subsequent years of monitoring.

Subsections (a)(1), (2), and (3) would be revised to provide compliance determination language consistent with the language proposed for sections 64535.2(a)(1) through (3) (i.e., the water system shall not exceed the Maximum Residual Disinfectant Levels, not a multiple of the Maximum Residual Disinfectant Levels). The Department adopted subsection (a) in 2006 [R-62-00, Disinfectants and Disinfection Byproducts in Drinking Water] to clarify how to determine compliance during the first year of monitoring; there is no corresponding U.S. EPA requirement.

Title 22, CCR, Division 4, Chapter 17.5, Article 1

Section 64671.80, Water Quality Parameter or WQP.

The paragraph would be revised to correct spelling.

REASONABLE ALTERNATIVE STANDARDS

The Department has determined that no reasonable alternative considered or otherwise identified and brought to its attention would be more effective in carrying out the purpose for which this action is proposed, or would be more cost-effective as and less burdensome to the regulated water systems and affected private persons, yet equally effective in implementing statutory requirements, than the proposed action.

ECONOMIC IMPACT ASSESSMENT

The Department has determined that the proposed regulations would not significantly affect the following:

- The creation or elimination of jobs within the State of California. The requirements summarized above should not have any affect in that there would not be any significant change in public water system or regulatory personnel needed for compliance with the new requirements.

- The creation of new businesses or the elimination of existing businesses within the State of California. The nature of the drinking water industry is such that the adoption of this proposed regulation would not result in the creation or elimination of businesses. The impact of the proposed regulations would be insignificant.

- The expansion of businesses currently doing business within the State of California. Since public water system size is basically a function of the number of service connections (consumers) served, the proposed regulations should not have any effect on expansion.

- The benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment. The Department has made a determination that the proposed regulations would improve the protection of the public's health and welfare through the control of hexavalent chromium and its associated risk in the public's drinking water supply, with no direct adverse impacts to worker safety or California's environment.

SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING BUSINESS, INCLUDING ABILITY TO COMPETE

The Department has determined that the proposed regulatory action would have no significant direct adverse economic impact on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states. The proposed regulations apply only to public water systems, as defined pursuant to Health and Safety Code section 116275, which are not businesses or individuals. Public water systems are water companies providing drinking water to the public and, pursuant to Government Code section 11342.610, are exempt from the definition of a small business.

LOCAL MANDATE

The Department has determined that the proposed regulation would not impose a mandate on local agencies or school districts that require state reimbursement, as the Department is implementing section 116365.5 of the Health and Safety Code and AB 938 (Chapter 514, Statutes of 2011). As a result, local agencies or school districts should not incur costs resulting from the adoption of this regulation.

Local agencies or school districts currently incur costs in their operation of public water systems. These costs are not the result of a "new program or higher level of service" within the meaning of Article XIIIB, Section 6 of the California Constitution because they apply generally to all individuals and entities that operate public water systems in California and do not impose unique requirements on local governments. Therefore, no state reimbursement of these costs is required.

Local regulatory agencies also may incur additional costs for their responsibility to enforce state regulations related to small public water systems (fewer than 200 service connections) that they regulate. However, local agencies are authorized to assess fees to pay reasonable expenses incurred in enforcing statutes and regulations related to small public water systems (Health and Saf. Code, § 101325). Therefore, no

reimbursement of any incidental costs to local agencies in enforcing this regulation would be required (Gov. Code, § 17556(d)).

EFFECT ON SMALL BUSINESS

The Department has determined that the proposed regulations would not affect small business because Government Code chapter 3.5, article 2, section 11342.610 excludes drinking water utilities from the definition of small business.

EFFECT ON HOUSING

The Department has determined that the proposed regulations would have no impact on housing costs.

REPORTING REQUIREMENTS

The Department has determined that the proposed regulations would not require reports from businesses.

WATER CODE SECTION 106.3 CONSIDERATION

In establishing and adopting the proposed regulations, the department considered the statewide policy set forth in section 106.3 of the Water Code and determined the proposed regulations will further the stated policy.

DOCUMENT INCORPORATED BY REFERENCE

The following document is incorporated by reference in the regulations as it would be too cumbersome, unduly expensive, or impractical to publish these documents into regulation.

- 40 Code of Federal Regulations part 141.605(b) (74 Fed. Reg. 30953 (June 29, 2009), “National Primary Drinking Water Regulations: Minor Correction to Stage 2 Disinfectants and Disinfection Byproducts Rule and Changes in References to Analytical Methods”.

Note: The Federal Register reference may be viewed, at no cost, through the following Internet address: http://www.gpoaccess.gov/fr/index.html.

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