Position Statement on Economic Feasibility Guidance for MCLs

February 19, 2019

Introduction

On February 20, 2018 the State Water Resources Control Board (SWRCB) adopted Resolution 2018-0009 establishing drinking water regulatory priorities for calendar year 2018.[1] The top priority identified in the staff report prepared by the Division of Drinking Water (DDW) and referenced in the Board Resolution is **Evaluation of "Economic Feasibility."** The staff report states, "because analyzing Economic Feasibility is foundational to developing the revised Hexavalent Chromium MCL, staff proposes to engage stakeholders in developing options for how to evaluate and discuss Economic Feasibility." The staff report also states, "whatever comes out of this process … could also potentially be used in the development of future regulations."

The undersigned organizations, which represent public water systems throughout California, support the SWRCB's decision to develop economic feasibility guidance for Maximum Contaminant Levels (MCLs) through a public process, and we believe this process deserves thorough and thoughtful deliberation. We offer the following comments in the interest of informing any options that may be under consideration by the SWRCB and Division of Drinking Water (DDW) staff ahead of the public process. Ideally, this paper should help facilitate a constructive dialogue so program stakeholders can strive to find a measure of consensus regarding drinking water regulatory decisions.

Public Water System Priorities

The highest priority for public water systems is to serve drinking water that delivers on the promise of California's Human Right to Water Act (HRTWA; AB 685, 2012) – water that is safe, clean, affordable and accessible to everyone in our service areas. The Act reflects the United Nations' recognition in 2010 of the human right to water and sanitation and acknowledgement that clean drinking water and sanitation are essential to the realization of all human rights.[2] The UN resolution called upon nations and international organizations to provide capacity-building and technology transfer to help countries, particularly developing countries, to provide safe, clean accessible and affordable drinking water and sanitation for all.[3] According to the UN

[1] https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/rs2018_0009.pdf.
[2] Resolution A/RES/64/292, General Comment No. 15, UN General Assembly (July 2010).
[3] UN General Assembly Resolution 64/292 "Human right to water and sanitation" (July 28, 2010).

resolution, water must be sufficient for personal and domestic uses; water facilities must be built in a way that they are genuinely accessible; water must be of a quality that is safe for human consumption; and the price of water must not limit people's capacity to buy other basic goods and services, including food, housing, health and education.

To accomplish this ambitious purpose in California—in an environment of conservation-depleted water system revenues and increasing uncertainty about the reliability of water sources and system infrastructure—we must optimize our investment of public resources and try to provide the most value for the greatest number of people. Our customers—our ratepayers—and all of the people of the State are looking to us to work together to find the right balance.

There is no question that MCLs must be protective of public health. The California Safe Drinking Water Act (CSDWA) establishes protection of public health as the leading factor in a risk management framework that also requires consideration of other important factors. Some have asserted that a higher MCL involves trading off public health protections for lower costs of compliance. This view does not take into account that to maximize risk reduction it is necessary to first evaluate the incremental public health benefits of achieving a lower MCL compared to the detrimental impacts, including public health impacts, of dedicating a larger share of finite water system and household budgets to that purpose. DDW has long recognized the tension between these outcomes, and this tension becomes untenable as MCLs move to more stringent levels.

As we discuss in the following comments, both the statutory and regulatory history of California's drinking water program indicate that MCLs should facilitate responsible investment of public resources to achieve meaningful net gains in public health protection.

Drinking Water Affordability is an Emerging Economic and Public Health Problem

There is a wide-ranging dialogue across California and nationally on the societal challenges presented by the rising costs of water-related services. Escalating water sector costs can be attributed to several factors including compliance with regulatory requirements such as drinking water MCLs, the need to expand existing water supplies to satisfy demand growth, agricultural consumption to feed a growing population, the need to address water supply vulnerabilities related to climate change and more frequent and prolonged drought cycles, and the need to replace or upgrade aging water system infrastructure responsible for unaccounted losses of treated drinking water. This latter issue is perhaps the single greatest challenge facing public water systems today. According to the National Academy of Public Administration

(NAPA), drinking water infrastructure needs nationwide are estimated at $1 trillion alone, and could result in a tripling of current water bills.[4]

Over the past two decades, the cost of tap water in California has increased by approximately 45 percent. Customers of small water systems pay approximately 20 percent more than customers of large systems.[5] Low- and fixed-income water system customers who are most vulnerable to cost of living increases experience these trends most acutely. The former chrome 6 MCL demonstrated that the drinking water affordability problem in California is no longer confined only to the very smallest water systems. In developing compliance plans pursuant to SB 385 (Hueso, 2015), several water systems serving between 1,000 and 10,000 connections reported cost estimates to achieve the 10 ppb MCL exceeding $1 million, just for capital improvements. Initial engineering estimates for some affected systems also suggested ongoing operation and maintenance costs would substantially exceed initial capital costs over a 20-year project life cycle. Few of these systems qualify for federal or state grant funding, and the rate increases necessary to cover the capital investments and ongoing costs of compliance would have been a true hardship for the disadvantaged populations they serve.

In California, water affordability is just one part of a broader affordability crisis. According to the U.S. Census Bureau's "supplemental poverty measure," which accounts for key underlying costs (such as housing, healthcare and child care) and benefits (such as social security payments and food stamps), the real poverty rate in California is 19 percent—the highest of any state. The Public Policy Institute of California indicates that nearly 40 percent of Californians are poor or near-poor—either living in poverty or unable to cover the cost of an emergency. And California ranks fourth out of the 50 states in income disparity.

It is critically important to understand the relationship between incremental public health protections and the resources necessary to achieve them. Even for systems with large service areas that are better positioned to absorb the costs of compliance with a more stringent MCL, the incremental public health protection may not justify the required expenditures because the MCL will divert system revenue from infrastructure rehabilitation and other necessary investments that are likely to provide greater health protection to ratepayers. It is also well established that high treatment costs can result in idling or abandoning groundwater wells in favor of less expensive compliance options. In a state that regularly struggles to meet water demands during periods of drought, any actions that diminish access to local or regional water supplies or which force greater reliance on alternative supplies that are more prone to drought

[4] NAPA, Developing a New Framework for Community Affordability of Clean Water Services (Oct. 2017).
[5] SWRCB, Safe Drinking Water Plan for California (June 2015) at pp. 14-15.

stress (e.g., surface water), will leave affected systems and communities even more vulnerable to future supply disruptions.

Available evidence suggests that an expensive regulation, in and of itself, can cause adverse public health impacts. This is because water system expenditures on regulatory compliance are borne by rate payers, reducing the amount of money that people have to spend on a wide range of items, including health care.[6] This creates negative public health impacts that offset (partially or completely) the public health benefits attributable to the regulation. This offset effect is stronger in poorer households than in affluent households.[7] At the residential ratepayer level, a regulation that compels greater expenditure of household budgets on a basic need such as drinking water necessarily limits discretionary expenditures on other goods and services that may deliver greater health benefits.

In addition, increased water costs are likely to lead to a reduction in tap water usage for a variety of non-consumptive purposes that promote good health. The importance of tap water from a public health perspective is not defined entirely by its use as drinking water. Tap water is also used for food preparation, cooking, hand washing, bathing, clothes washing, dish washing, surface cleaning, and flushing toilets. Ensuring that drinking water is accessible and affordable to support these uses is an important public health benefit. Increases in the cost of tap water will discourage non-consumptive tap water uses among some populations in the interest of reducing water bills. Such shifts in usage will lead to decreased sanitation and an increased risk of infectious diseases. This potential risk tradeoff is an important risk management consideration because it can lead to a net increase in public health risk. It is also a distinct cost that should be considered in evaluating the economic feasibility of proposed MCLs.

Both the California Safe Drinking Water Act and the Human Right to Water Act suggest a balanced approach to MCL-setting that protects public health and is sustainable over the long term given competing demands for limited resources at the state level, the individual system level and the household level. These principles should be reflected in the design of DDW's economic feasibility guidance and in all future MCLs it recommends to the SWRCB.

[6] Hahn et al., Do Federal Regulations Reduce Mortality? AEI-Brookings (2000).
[7] Chapman et al., Do Poor People Have a Stronger Relationship between Income and Mortality than the Rich? 12 Journal of Risk & Uncertainty 51 (1996).

California Safe Drinking Water Act Amendments (1996)[8]

In 1996, the Legislature passed Senate Bill 1307 (Calderon), which amended the California Safe Drinking Water Act ("CSDWA"). The prior version of the CSDWA required large public water systems to submit plans to go beyond compliance with MCLs and to provide water with concentrations closer to the corresponding PHG. This statutory construct prompted the concern that as levels approach the PHG, the costs to achieve them can escalate rapidly with little corresponding public health benefit. SB 1307 was introduced to establish additional checks and balances in the MCL development process that would prevent such unsustainable outcomes.

The amendments established that PHGs are not enforceable regulatory standards. They required that MCLs be set as close as *feasible* to the corresponding PHGs, taking into consideration applicable federal MCLs and "the technological and economic feasibility of compliance" with the proposed MCL. The amendments declared that PHGs are a risk assessment construct and repealed the requirement that water systems attempt to achieve PHG levels in drinking water. The newly clarified criteria for establishing MCLs were intended to maintain public health protection while decreasing the economic burden on public water systems and their customers.[9]

The CSDWA requires the SWRCB to "consider the costs of compliance to public water systems, customers, and other affected parties … including the cost per customer and the aggregate cost of compliance, using best available technology." The CDSWA does not require the SWRCB to adhere to the same standards and procedures established in the 1996 amendments to the federal Safe Drinking Water Act. Nor does it explicitly require the agency to select an MCL on the basis that the potential monetary benefits to public health exceed the potential costs of compliance.

However, the statutory language, combined with the legislative history of SB 1307, demonstrates that the overarching purpose of the CSDWA is to achieve a balance between protecting public health and ensuring scarce public funds are not spent on water quality objectives that are disproportionately expensive compared to the public health protection they provide. To accomplish this purpose, it will be important to determine and carefully consider the incremental public health protections and incremental costs of compliance among a range of alternative MCLs.

[8] Health and Safety Code § 116365.
[9] Conference Committee Report (Aug. 26, 1996).

DDW's Historical Interpretation of the 1996 California Safe Drinking Water Act Amendments

DDW's practice following enactment of the 1996 CSDWA amendments demonstrated consistent application of these principles in evaluating proposed MCLs and potential changes to existing MCLs.

In 1999, DDW reviewed the existing 0.2 ug/L MCL for dibromochloropropane (DBCP). Costs per theoretical cancer case reduced were calculated for several alternative MCLs and ranged from $30.4 million to $178.5 million. Based on these numbers, it was "recommended that the current MCL for DBCP remain unchanged." At the least costly alternative MCL (0.1 ug/L), it was determined that large water systems would incur $30.4 million per cancer case avoided and small water systems would incur $81.2 million per cancer case avoided. DDW concluded that the "burden that would be incurred … does not justify any revision."[10]

In 2008, DDW established a new MCL for arsenic. Several alternative MCLs were considered, including the federal MCL of 0.010 mg/L. DDW calculations showed that for small water systems, 2 excess cancer cases would be avoided at an MCL of 0.010 mg/L, while 3.8 cancer cases would be avoided at an MCL of 0.002 mg/L. In its Final Statement of Reasons, DDW stated that it "does not believe that the small increment in benefits that would be achieved by a more stringent MCL than 0.010 mg/L justifies increasing the burden on the smaller water system communities …"[11]

DDW described the approach it used in these and other MCL evaluations as a "cost-benefit analysis." In each case DDW developed quantitative estimates of incremental compliance costs and incremental health benefits (expressed in the above examples as theoretical excess cancer cases avoided) for water systems of various sizes at each alternative MCL. DDW's analyses also considered other factors such as the affordability of the proposed MCL[12] and the impact of alternative MCLs on the state's capacity to provide compliance assistance through available funding mechanisms such as the State Revolving Fund.

The chrome 6 MCL, adopted by the California Department of Public Health (CDPH) in April 2014, stands out as a significant departure from past practice and from the legislative intent of the

[10] DBCP MCL Evaluation, California Department of Public Health, Division of Drinking Water and Environmental Management, (Nov. 29, 1999) p. 10.
[11] Arsenic MCL Final Statement of Reasons, California Department of Public Health, Division of Drinking Water and Environmental Management August 7, 2008, page 9.
[12] In the arsenic MCL rulemaking DDW cited the National Drinking Water Advisory Council's affordability threshold of 1% of median household income in service area of the affected water system.

1996 CSDWA amendments. Cost estimates were developed for seven alternative MCLs. However, the incremental public health benefits were not compared to the incremental costs of compliance at each alternative MCL. It also does not appear that a balancing exercise was undertaken to ensure that the small incremental benefits that would be achieved justified the incremental costs and the increased burden on public water systems and their customers.

While the CSDWA has been amended since 1996, none of these amendments alters the language in a way that would explain the departure from the historical practice of using an incremental cost-benefit approach to evaluating economic feasibility.

The Administrative Procedure Act Provides Further Legislative Guidance

The Legislature passed the Administrative Procedure Act (APA) out of concern that the accumulation of regulations over time would impose greater than necessary burdens on the state.[13] The Legislature has revisited the APA several times to provide additional guidance to state agencies. The most recent amendment was passed in 2011 as Senate Bill 617.[14] In each instance, the goal of the Legislature has been to establish requirements that would lead to the adoption of more economically efficient and cost-effective regulations.

This statute and implementing regulations developed by the Department of Finance which took effect on November 1, 2013[15] require all state agencies proposing to adopt "major regulations"[16] must conduct an economic impact analysis that includes quantification of costs and benefits, evaluation of non-monetary benefits, evaluation of the incremental costs and benefits of potential alternatives and a comparison of the cost-effectiveness of potential alternatives. The SWRCB has acknowledged that all MCLs are "major regulations" and all future MCLs and potential changes to existing MCLs will be subject to these requirements.

In the words of the statute:

> Analyses conducted pursuant to this section are intended to provide agencies and the public with tools to determine whether the regulatory proposal is an efficient and effective means of implementing the policy decisions enacted in

[13] Voss v. Superior Court, 46 Cal.App.4th 900 (1996).
[14] Government Code §11346.2 et seq.
[15] California Code of Regulations, title 1, § 2000 et seq.
[16] Government Code § 11342.548. "Major regulation" means any proposed adoption, amendment, or repeal of a regulation subject to review by the Office of Administrative Law pursuant to Article 6 (commencing with Section 11349) that will have an economic impact on California business enterprises and individuals in an amount exceeding fifty million dollars ($50,000,000), as estimated by the agency.

> statute or by other provisions of law in the least burdensome manner. Regulatory impact analyses shall inform the agencies and the public of the economic consequences of regulatory choices, not reassess statutory policy. The baseline for the regulatory analysis shall be the most cost-effective set of regulatory measures that are equally effective in achieving the purpose of the regulation in a manner that ensures full compliance with the authorizing statute or other law being implemented or made specific by the proposed regulation.[17]

This statutory language indicates that the Legislature is seeking greater transparency and greater rigor in the evaluation of economic impacts. The Legislature is also seeking regulatory decisions that minimize the extent of economic impacts on affected parties.

Although the provisions of the APA are not part of the CSDWA, they are both informative of an approach to addressing economic feasibility and legally applicable to the establishment of MCLs. In the 1996 CSDWA amendments, the Legislature made it clear that it wanted to maintain public health protection while decreasing the economic burden placed on public water systems and their customers. The concept of "economic feasibility" was meant to prevent such outcomes and the APA provisions are consistent with this concept.

A SWRCB Model for Evaluating Economic Feasibility

The SWRCB already has developed and is successfully implementing guidance that can serve as a model for evaluating the economic feasibility of proposed MCLs. The "Guidelines for Preparing Economic Analysis for Water Recycling Projects" (Guidelines), dated April 2011, were developed for the SWRCB by a group of technical experts in economic analysis and policy from state and federal agencies and academia, to inform selection and funding of water recycling projects.[18] The purpose of the Guidelines, described in the Executive Summary, is to apply economic and financial analysis methods to determine the overall value of a project to society and to individual beneficiaries, and to develop "a more efficient allocation of scarce resources for infrastructural projects."[19] The Guidelines prescribe the following two-step evaluation process:

[17] Government Code § 11346.3(e).
[18] Guidelines for Preparing Economic Analysis for Water Recycling Projects, Economic Analysis Task Force for Water Recycling in California, University of California, Davis Center for Watershed Sciences, April, 2011: https://watershed.ucdavis.edu/files/biblio/EAGD_Final_V2003_05182011.pdf
[19] Id. page vi.

Step 1 involves an economic analysis, which the Guidelines indicates is "the primary step used to determine whether to proceed with a project." This step seeks to determine whether, from a broad societal perspective, the project will generate sufficient benefits in excess of costs to warrant investment.[20] Section 3 describes a process that involves identification and quantification of all project benefits and costs, including those that "directly affect the proposing agency and the effects of the project on individuals, households and businesses outside of the agency purview."[21] To assess economic feasibility, the proposed project must be compared to potential alternatives using the same metrics, which necessarily involves consideration of incremental benefits and costs. The Guidelines also offer the following definition of economic feasibility: "Most commonly, a project with a positive net present value is considered to be economically feasible."[22] The economic analysis described in the Guidelines is generally analogous to the cost-benefit analyses and determinations of economic feasibility that were conducted by DDW on proposed MCLs and MCL reviews that pre-date the chrome 6 MCL.

Step 2 involves a financial analysis, which follows from a determination that the proposed project is economically feasible. Section 4 of the Guidelines describes a process wherein project proponents assess the ability of project beneficiaries to pay for implementation costs over the lifetime of the project. "A project is considered financially feasible or solvent if the agency has sufficient capital for construction, can pay for costs over the repayment period, and estimated revenues can cover operations and maintenance costs and debt service payments over the period of analysis (Ernst and Ernst, 1979)."[23] This second step may also lead to selection of an alternative to the proposed project, or it may result in identification of alternative or additional funding mechanisms to ensure the project will be sustainable over time for those who will bear the financial burdens. Step 2 is analogous to an evaluation of the affordability of a proposed MCL for individual water systems and their ratepayers.

Among other relevant features, Section 3 of the Guidelines references methodologies for determining the monetary value of project benefits and costs "that cannot be readily measured using observable market prices and costs." This step allows for direct comparison of project benefits and costs. While the examples provided in the guidelines do not address valuation of public health benefits, comparable methodologies can be adapted from the published literature to drinking water contaminants that apply to both cancer and non-cancer health endpoints.

[20] Id. page 1-1.
[21] Id. page 3-8.
[22] Id. page iv.
[23] Id. page 4-1.

The process described in the SWRCB's Water Recycling Guidelines provides a rigorous and technically defensible approach to analyzing economic feasibility that can be scaled from the state level down to the individual water system level. As the authors state in Section 4, while financial feasibility is a necessary consideration, it "is not a sufficient condition to build a project."[24] Therefore, taken as a whole, the SWRCB Water Recycling Guidelines suggest a comprehensive approach to the evaluation of economic feasibility.

Recommendations for SWRCB MCL Economic Feasibility Guidance

For the foregoing reasons, we recommend that the SWRCB's guidance for evaluating the economic feasibility of MCLs include the following elements:

1. Conduct a state-level cost-benefit analysis consistent with the framework established in the SWRCB's Water Recycling Guidelines to evaluate alternative MCLs.
    a. Quantify public health benefits - both direct and indirect – to facilitate transparent comparisons between estimates of health benefits and compliance costs.
    b. Incremental health benefits should be identified at each alternative MCL to allow for comparison of the cost-effectiveness of each alternative, consistent with SB 617 requirements and DDW past practice.
    c. Eliminate from further consideration any potential alternative MCL that would impose disproportionately high incremental compliance costs relative to incremental public health benefits. On balance, these alternatives may well be detrimental to public health.
2. For alternative MCLs still under consideration following step 1, evaluate potential affordability impacts on individual water systems.
    a. Define a threshold and metrics to measure affordability. The SWRCB should avoid using Median Household Income (MHI)-based metrics because household income is not evenly distributed at the community level and an MHI-based metric would mask the impact of the alternative MCL on economically disadvantaged subpopulations within the water system service area.
    b. Identify water systems that lack the technical, managerial and financial capacity necessary to comply with one or more alternative MCLs or which serve economically disadvantaged subpopulations.

[24] Id. page 4-1.

   c. Eliminate from further consideration any alternative MCLs that would result in affordability problems for systems serving 10,000 or fewer connections.
3. The proposed MCL should be the remaining alternative that is closest to the PHG, provided it is also demonstrated to be technologically feasible.
4. Identify sustainable, cost-effective strategies to bridge remaining affordability gaps.
   a. Solutions should be tailored to the needs of individual water systems and account for the limitations of current alternatives to source water treatment.
   b. Due to the high cost of water conveyance infrastructure, physical consolidation may not be a viable option in many cases, though other forms of utility partnership may be beneficial.
   c. To the extent state grant funding is identified as a preferred solution, the SWRCB should establish that the funding source(s) has the capacity to accommodate the additional demand. In addition, the process for securing grant funding should be easily accessible to applicants and timely relative to their compliance deadlines.
   d. Any compliance mechanisms should be part of a Compliance Plan adopted in tandem with new MCLs to address the needs of smaller systems and disadvantaged communities. These may include grants, technical and managerial support, variances, point-of-entry or point-of-use treatment and other mechanisms. Any temporary compliance mechanisms should be replaced with permanent solutions before new regulatory requirements are enforced to ensure the future sustainability of the affected systems.
5. The guidance should apply to all future MCLs and MCL reviews.
   a. For non-carcinogens, the potential-health benefits will be different for each MCL. The SWRCB should utilize the PHG and the published literature to quantify potential public health benefits at each alternative MCL.
   b. The SWRCB should also identify an acceptable range of risk for regulating non-carcinogens as it has for carcinogens.[25] Other environmental regulatory programs at the local, state and federal level incorporate non-cancer risk management ranges and can serve as models for the drinking water program.[26]

[25] Existing MCLs for carcinogens recognize a range of acceptable risk spanning three orders of magnitude from 10^{-6} to 10^{-4}.

[26] For example, South Coast Air Quality Management District's (SCAQMD) Rule 1402 and supplemental guidelines for implementing the California Air Toxics Hot Spots Program employ a non-cancer hazard index (HI) range between 1 and 3. The SCAQMD guidelines specify that any regulated entity whose non-cancer HI at any receptor is greater than 1 but less than 3 is required to notify the exposed individuals (Table 4, page 13). Entities with non-cancer HIs exceeding 3 are required to take actions to reduce their non-cancer risk. SCAQMD Rule 1402 aligns well with the design of the California Safe Drinking Water Act and implementing regulations that require public water

Conclusion

A rigorous, scientific and best-practices approach to evaluation of economic feasibility for proposed MCLs that is consistent with both applicable laws and past practice will provide concrete benefits to the public, the SWRCB and water utilities. Such an approach should ensure that available system and rate payer resources are invested in MCLs that maximize risk reduction and public health benefits. It should also provide greater water rate affordability and stability for low- and fixed-income ratepayers and greater certainty for water systems facing future compliance obligations. Finally, it should prompt more effective risk communication, which will in turn enhance public confidence in the safety of drinking water throughout the state.

Sincerely,

Charles Wilson
Executive Director
Southern California Water Coalition

systems to *notify* their customers through Consumer Confidence Reports when they deliver water with levels of contaminants above applicable PHGs. Where the water system identifies concentrations exceeding applicable MCLs, they are required to take necessary actions to *reduce* those concentrations to levels below the MCL.