



COACHELLA VALLEY WATER DISTRICT

Established in 1918 as a public agency

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December 31, 2020

Attn: Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Flo or
Sacramento, CA 95814

Submitted via email: commentletters@waterboards.ca.gov

Dear Ms. Townsend:

Subject: Comment Letter – Hexavalent Chromium MCL Costs

The Coachella Valley Water District (CVWD) appreciates the opportunity to comment along with other stakeholders who may be affected by the State Water Resources Control Board (SWRCB) work to estimate costs to comply with a proposed hexavalent chromium maximum contaminant level (MCL). CVWD provides domestic water, wastewater, recycled water, irrigation/drainage, regional stormwater protection and ground management services to a population of about 300,000 throughout the Coachella Valley.

Enclosed are CVWD comments provided on December 8, 2020 during the SWRCB workshop on the Hexavalent Chromium MCL Estimate of Costs. In addition to the enclosed comments, CVWD wishes to provide the following comments for your consideration:

1. Methodology and Assumptions Lack Technology Descriptions. The most important information SWRCB staff intended to communicate with the subject documents are estimated costs to implement various treatment technologies to meet multiple proposed hexavalent chromium (Cr6) MCL options. Six treatment technologies are identified but only with abbreviations (e.g., WBA, RCF, and SBA). While an assumption can reasonably be made that “SBA” is an abbreviation for Strong Base Anion and refers to a type of ion exchange resin used, it is unknown what SBA treatment methodology was used to develop the cost estimates. For example, SBA can be designed and operated as a single-pass media or the media can be regenerated and reused multiple times. Media regeneration can occur on-site or the media can be regenerated off-site. Variable characteristics can apply to waste brine generated that may require different levels of treatment or different disposal locations that can significantly impact treatment costs. Each of these different methodologies are associated with numerous constraints often driven by local conditions involving well site and water quality characteristics. A detailed description of each of the six treatment technologies and the numerous assumptions that are unique to each technology used to develop the estimated treatment costs needs to be added to the Methodology and Assumptions so that the public and impacted water agencies can provide meaningful input on these tables.

2. Methodology and Assumptions Produce Biased Results. One of the SWRCB general assumptions is that water would be treated to a level equal to 80 percent of the selected MCL except for the SBA technology which would be treated to below the detection limit for reporting (DLR). There is no explanation for why a different assumption is used for SBA. SBA treatment, like the remaining treatment technologies, are routinely designed and operated to reliably treat water to meet some percentage of the MCL, typically 80 percent. CVWD's three existing SBA treatment plants designed to remove naturally occurring arsenic and Cr6 have been operated to maintain arsenic levels in treated water below 80 percent of the 10 microgram per liter (ug/L) MCL for over 10 years. Similarly, CVWD's Cr6 compliance plan included shovel ready design plans for 20 SBA treatment plants that targeted 80 percent of the 10 ug/L MCL. When compared to treating below the DLR, the target of 80 percent of the MCL provides capital cost savings associated with partial stream treatment and operational cost savings by allowing longer run times before regeneration. It appears this unjustified general assumption is the reason that SWRCB staff failed to develop SBA treatment costs for any MCL option other than 1 ug/L. This assumption has the effect of masking the cost savings that can be achieved at the four MCL options that are higher than 1 ug/L for SBA treatment and will act to bias future cost benefit assessments to disproportionately favor the 1 ug/L option.
3. Incomplete Treatment Costs Table. This table provides incomplete cost estimates for treatment technologies identified to reduce Cr6 levels below five proposed Cr6 MCL options. Treatment costs are missing from this table for Cr6 MCL options above 1 ug/L for the following three identified treatment technologies: 1) RCF (w/ vacuum MF), 2) RCF (w/ pressure MF), and 3) SBA. Each of these treatment technologies can be designed and operated more cost effectively to meet the identified MCL options above 1 ug/L. The estimated costs to meet identified MCL options above 1 ug/L should be added to the Treatment Costs table for RCF (w/ vacuum MF), RCF (w/ pressure MF), and SBA.
4. Inaccurate Treatment Cost Equations Table. There are significant problems with at least one of the cost equations provided in this table. For example, applying the best fit capital cost equation provided for the SBA treatment technology for a 2,000 gallon per minute (gpm) well results in a calculated cost of \$3,874,200. However, the Treatment Cost Table reports a capital cost of \$5,064,000 for this same 2,000 gpm SBA treatment facility. This is a 24% difference between the information provided in these two tables for the same 2,000 gpm SBA treatment facility. Calculating SBA capital facility costs for the remaining differently sized well facilities results in cost differences between information provided in these tables that range up to 29%. CVWD has considerable concern in effectively utilizing the equations provided to provide estimates of treatment costs for the selected technologies. These equations need significant evaluation and corrections before use.

5. Methodology Underestimates Treatment Costs for WBA and SBA Technologies. As noted in the enclosed comments, the estimated costs generated using the SWRCB staff treatment cost equation to implement WBA treatment for CVWD's Improvement District No. 8 (ID-8) water system to meet a 10 ug/L Cr6 MCL are about 80% lower than the present day adjusted guaranteed maximum price (GMP) obtained to implement a shovel ready WBA treatment project for this water system to meet the 10 ug/L MCL adopted in 2014. In addition, we have calculated a total capital estimated cost of \$115,808,343 using the SWRCB staff treatment cost equation to implement SBA treatment for CVWD's largest public water system to meet a 10 ug/L Cr6 MCL. This amount is 128% lower than the present day adjusted GMP amount of \$264,200,000 to implement a shovel ready SBA treatment project to satisfy the same 10 ug/L Cr6 MCL. These two examples of shovel ready project costs demonstrate SWRCB staff treatment cost equations significantly underestimate actual costs to implement the WBA and SBA technologies to meet a 10 ug/L Cr6 MCL.
6. Health Effects Table Masks True Cost Impact. This table reports an average monthly cost per service connection for multiple categories of water system sizes and for multiple different Cr6 MCL options. For the 1,000-9,999 service connection category, the table lists an average monthly cost of \$35 per service connection to meet a 10 ug/L Cr6 MCL. Using the SWRCB staff cost equation for our ID-8 water system, the average monthly cost per service connection is \$299 and this cost increases to \$538 using the shovel ready project cost mentioned above, which is 15 times higher than the \$35 amount provided in the SWRCB staff Health Effects Table. This table needs to be revised to show the full range of water system cost impacts rather than only showing the estimated statewide average amount calculated for each category and this range should account for the range of costs associated with different treatment technologies rather than only using the SBA treatment cost. This same discrepancy is observed in the community and non-community water systems treatment cost tables and the charts and figures produced to evaluate these cost impacts.

Your consideration of these comments is appreciated. Please contact me at sbigley@cvwd.org or extension 2286 if you have any questions.

Sincerely,



Steve Bigley
Director of Environmental Services

Enclosure/1/as

SB: ms\Env Srvs\2020\Dec\Comments Cr6 MCL EOC Ltr.doc
File: 0022.113.32.4

**Hexavalent Chromium MCL Estimates of Costs
Virtual Workshop – December 2020
Coachella Valley Water District Comments**

Good morning, CVWD had the largest number of water agency wells in the State impacted by the 2014 Cr6 MCL and remains very interested in the development of the new MCL. Cr6 occurs naturally in Coachella Valley sediments and in almost all the groundwater produced from CVWD's 97 wells served to large and small water systems.

First and foremost, we are disappointed that the posted documents provide no information regarding the State's ongoing review of the Cr6 public health goal. This process needs to be completed to ensure the PHG used for the Cr6 MCL development is based on the best available information. The existing PHG is found in the table titled "Health Effects" but it is unclear what health effects information is being provided considering the table primarily lists monthly cost estimates for different categories of water systems to comply with 7 different MCL options.

Even with 18 years of experience evaluating Cr6 treatment technologies, we were unable to properly evaluate the cost estimates provided in the tables considering no definitions or descriptions for the selected technologies were provided. For example, it's easy to assume "SBA" refers to strong-base anion exchange but we are unable to determine if this is single-pass or regenerated SBA, whether resin is regenerated on-site or off-site, what EBCT's were used, how waste brine was treated, if at all, and was pH adjustment included.

In addition to these descriptions, it would have been informative to include in the Methodology and Assumptions Summary the decisions used regarding the management and disposal of treatment waste residuals and the amount of time water systems have to comply with the MCL. As mentioned in our prior comments related to DDW's white paper on Cr6 MCL economic feasibility, we found these decisions are significant cost drivers, and in some cases, significant constraints for the technologies DDW selected.

We were unable to determine if the cost estimates include any adjustment for variable site conditions at well sites. Many impacted wells contain co-occurring contaminants, including sulfate and uranium, which drive treatment cost estimates for some of the selected technologies. Even something as simple as the size of the well site can be a significant constraint for implementing these

technologies and adds significant costs for pipelines, pumping stations, and land purchases. Site conditions are significant considerations for CEQA review and cost estimates need to account for the mitigation measures, both environmental and community driven, needed to implement these projects. It appears DDW makes the assumption that treatment will occur on-site at each source which may mean these cost estimates lack the adjustments that could be used to account for the increased costs associated with variable site conditions.

All of these items were considered by CVWD in its Cr6 MCL compliance plan that included a guaranteed maximum price, or GMP, for capital facilities that included two of the technologies DDW selected. Comparing our GMP to costs calculated using your “treatment equations”, we found the GMP using 2020 dollars was about 80% higher than the cost calculated using your equation to implement WBA for one of CVWD’s water systems to meet a 10 ug/L Cr6 MCL. We suspect that this cost difference is a result of DDW assumptions that do not account for site conditions including the presence of co-occurring contaminants. We believe DDW’s estimates could benefit from a calibration process that could be achieved by working collaboratively with agencies who are able to share this type of information.

This type of collaboration is not new for Federal drinking water standards. As part of the development of the revised arsenic MCL, USEPA implemented the Arsenic Removal Technology Demonstration Project program to perform “real-world” evaluations of conventional and innovative technologies that were particularly relevant for evaluating treatment costs for small water systems. California lacks this type of program and the resulting information gap becomes critical when developing a Cr6 specific MCL that does not exist anywhere else. To fill this gap, we recommend California develop and implement a treatment technologies demonstration program to evaluate the full suite of Cr6 reduction treatment technologies, including stannous chloride, so that more informed cost estimates can be used when developing the new MCL.