Hexavalent Chromium Maximum Contaminant Level Consolidation and Alternatives Analysis

In response to comments received, State Water Resources Control Board staff have reviewed data for potential consolidation and blending feasibility. A summary table (presented below) was developed from system-level data (Attachment 1) with the following notes and considerations:

- This Alternatives Analysis is based on the Hexavalent Chromium Maximum Contaminant Level (MCL) Rulemaking dataset (SWRCB, 2021b&c), which includes systems with at least one source that has an annual average exceeding 10 ug/L from January 1, 2010, to June 21, 2021 (details are available in Initial Statement of Reasons, Attachment 2 section I.3.a).
- A breakdown of the public water systems (PWS) included in this analysis can be found in ISOR Attachment 1: Table 22 shows all systems by type, and Tables 7.1A and 7.1B show size breakdowns of community water systems (CWS) and nontransient-noncommunity water systems (NTNCWS), respectively.
- Some systems were not included in this analysis: all 7 NTNCWS, 2 systems that already have best available technology (BAT) installed; one system that consolidated subsequent to June 21, 2021, and no longer exists; and one system that placed their only contaminated source on inactive status subsequent to June 21, 2021.
- Consolidation potential was based on the following methodology (detailed in the July 14, 2023, Draft White Paper Discussion on: Proposed Drinking Water Cost Assessment Model Assumptions on Physical Consolidation, Appendix A):
  - Potential physical consolidation routes to other water systems were based on distances of less than 3 miles, and potential interconnections were based on intersecting system boundaries.
  - Distances between systems were determined using water system boundaries in ArcGIS through the Network Analysis tool within ArcPro, which measures the real-world street distance between two points (water pipelines are generally placed along streets).
  - Distances were based on the shortest possible routes with no impedances, measuring the distance between the outer perimeter of a receiving system and the center of a joining system (i.e., not based on actual known potential connection points).
  - In the cases that a system did not have a verified service area boundary, a circular artificial boundary (with a 1-mile diameter centered on the system's facilities/wells) was used as a proxy so that the system could be included in the analysis.

- The consolidation summary in the table below did not double count systems. If a system was already involved in an existing Safe and Affordable Funding for Equity and Resilience (SAFER) consolidation as the subsuming system, it was not counted again for either the potential intersection or connection route categories.
- Blending potential was based on the number of sources in a system that exceeded or did not exceed 10 ug/L. Additional system-specific factors were not considered, such as the location and proximity of sources to each other, costs associated with bringing water to a central blending location, system configuration, and comparative source size or volume.
- In addition to the Hexavalent Chromium MCL Rulemaking dataset, the following were used in this analysis:
    - ESRI. (2022). ArcGIS StreetMap Premium.
    - SWRCB. (2023d). Draft White Paper Discussion on: Proposed Drinking Water Cost Assessment Model Assumptions on Physical Consolidation. Retrieved from: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-white-paper.pdf.
    - SWRCB. (2024). California Drinking Water System Area Boundaries. Retrieved from: https://gispublic.waterboards.ca.gov/portal/home/item.html?id=fbba842bf134497c9d611ad506ec48cc.
    - U.S. Census Bureau. (2022). B19013: Median Household Income, 2022 5-year Estimates (in 2022 Inflation-Adjusted Dollars). Retrieved from: https://data.census.gov/table/ACSDT5Y2022.B19013?t=Income%20and%20Poverty&g=040XX00US06$1500000.

Summary Table: Consolidation and Alternatives Analysis

Categories	Total Number of PWS	% of Total PWS	SC < 100	100 ≤ SC < 200	200 ≤ SC < 1,000	1,000 ≤ SC < 5,000	5,000 ≤ SC < 10,000	SC ≥ 10,000
Total PWS Impacted by Cr6 (all types)	**233**	**-**						
- Impacted PWS in this Analysis	222	100%	125	13	14	26	13	31
Consolidation Potential								
- Existing SAFER Project to Consolidate	24	11%	20	2	1	1	-	-
- Potential Intersection	35	16%	6	-	-	3	4	22
- Potential Connection Route	22	10%	17	-	3	1	-	1
- Total	**81**	**36%**	**43**	**2**	**4**	**5**	**4**	**23**
Blending Potential								
- Blending when < 25% of sources exceed MCL	39	18%	3	-	1	9	7	19
- Blending when ≤ 25% of sources exceed MCL	47	21%	5	1	4	11	7	19
- Blending when < 50% of sources exceed MCL	70	32%	11	3	7	15	8	26
- Blending when ≤ 50% of sources exceed MCL	95	43%	31	4	10	15	9	26
Both Blending and Consolidation Potential								
- Blending when < 25% of sources exceed MCL	24	11%	1	-	-	2	3	18
- Blending when ≤ 25% of sources exceed MCL	28	13%	2	-	1	4	3	18
- Blending when < 50% of sources exceed MCL	34	15%	4	-	2	4	3	21
- Blending when ≤ 50% of sources exceed MCL	43	19%	12	-	3	4	3	21
Neither Blending nor Consolidation Potential								
- Blending when < 25% of sources exceed MCL	126	57%	77	13	11	13	5	7
- Blending when ≤ 25% of sources exceed MCL	122	55%	76	12	9	13	5	7
- Blending when < 50% of sources exceed MCL	105	47%	72	10	7	9	4	3
- Blending when ≤ 50% of sources exceed MCL	89	40%	60	9	5	9	3	3

SC = service connections; Cr6 = hexavalent chromium