

# Status of City of Glendale Treatment Projects for Chromium-6 (Cr-6)

- Project began in 2000 as City of Glendale planned use of new treated groundwater source with levels of Cr-6.
- Due to heightened awareness and public hearings, the City moved to reduce Cr-6 levels by blending and treatment. Glendale City Council authorized Glendale Water & Power to initiate research treatment studies.
- City of Glendale has completed Phases I through III of the research program. Results include:
  - Phase I - Screened all available technologies via bench-scale studies
  - Phase II - Completed pilot-scale studies for top-rated bench-scale studies and other known industrial clean-up technologies; began evaluating long-term performance and initial estimation of treatment costs.
  - Phase III – Installed two demonstration scale treatment plants; gathered data on performance and capitol and operation and maintenance costs specific to that treated source; refined and reported treatment costs data and estimates.
- Upcoming phases of research program - Phase III A, B, and C:
  - evaluate additional technologies for two demonstration plants for better performance and lower costs;
  - install best performing media at demonstration plant for evaluation

# Status of City of Glendale Treatment Projects (continued)

- CDPH Drinking Water Program history with Glendale Project:
  - Recognized need for treatment and cost data in 2001 under requirement to develop MCL
  - Participates on Technical Advisory Committee since 2002 (since Phase I)
  - First Prop. 50 funding agreement issued September 2009
- Key findings of Glendale research program:
  - Treatment technologies for Cr-6 removal from drinking water are more complex to design and operate compared to others that have been used thus far in drinking water treatment
  - Weak base anion exchange has proven to be the best available technology to date. However, studies on issues related to overcoming limitations of the technology are underway, along with looking at higher performance and less expensive resins.
  - Treatment facilities will require large footprint that may be expensive and challenging for space-limited sources affected by Cr-6.
- Data/Information Gaps:
  - Treatment technologies have only been demonstrated for one drinking water source at this point in time.
  - Costs are associated with the particular specifics attributed to this source, and do not address state-wide considerations
  - Additional, iterative work needed to optimize currently available treatment technologies to help improve performance and reduce costs (both capitol and O&M)

# Maximum Contaminant Levels

- Primary Maximum Contaminant Levels (MCLs) are enforceable drinking water standards
  - Adopted through the regulatory process
  - Set as close as *technologically and economically* feasible to Public Health Goal (PHG), pursuant to Health and Safety Code §116365(a).
- Primary emphasis: public health protection
- Part of the development process evaluates the technical and economic feasibility of regulating a chemical contaminant. Technical feasibility includes an evaluation of commercial laboratories' ability to analyze for and detect the chemical in drinking water, the costs of monitoring, and the costs of treatment required to remove it. Costs are required by law to be considered whenever MCLs are adopted.

# Maximum Contaminant Levels

## (continued)

- To determine the technical and economic feasibility, CDPH goes through the following steps:
  - Receives the PHG from the Office of Environmental Health Hazard Assessment (OEHHA).
  - Selects possible draft MCL concentrations for evaluation
  - Evaluates the occurrence data
  - Evaluates available analytical methods and estimates monitoring costs at draft MCL concentrations
  - Estimates population exposures at draft MCL concentrations
  - Identifies best available technology (BAT) for treatment
  - Estimates treatment costs at draft MCL concentrations
  - Reviews the costs and associated health benefits (health risk reductions) that result from treatment at the draft MCL concentrations
  - Proposes the draft MCL concentration

# MCL Development Example: Perchlorate

- Final PHG = 0.004 ppb set in March 2004
- Final MCL established at 6 ppb in Oct. 2007
- This is a California-only MCL – no national MCL exists
- Treatment technologies were already available that required minor adaptation

More info available at: <http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Perchlorate.aspx>