



October 11, 2013

VIA ELECTRONIC MAIL

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Office of Regulations
California Department of Public Health MS 0507
P.O. Box 997377, Sacramento, CA 95899-7377

RE: Hexavalent Chromium MCL (DPH-11-005)

Dear Ladies and Gentlemen,

The Santa Ynez River Water Conservation District, Improvement District No. 1 ("the District") appreciates the opportunity to comment on the California Department of Public Health's ("CDPH") draft proposed hexavalent chromium ("Cr(VI)") maximum contaminant level ("MCL"). The District requests that this comment letter be included as part of the administrative record in this matter.

Introduction.

The District is a public agency that has operated since 1959 and is responsible for providing domestic potable water to residents, businesses and agricultural interests in the Santa Ynez Valley, California. The District has grave concerns with the significant adverse operational and financial impacts that CDPH's draft Cr(VI) MCL will have on the District and its customers.

The draft MCL will immediately and directly impair the District's ability to provide safe, reliable and affordable domestic potable water to its customers. Recent water quality monitoring data indicate the presence of Cr(VI), at or above the proposed MCL of 10 parts per billion, in seven of eight (8) of the District's active water supply wells ("Uplands Wells") that pump from the Santa Ynez Upland Groundwater Basin ("Upland Basin"). The hexavalent chromium detected in the Upland Wells is all naturally occurring. Monitoring data from these wells are included in the CDPH Water Quality Monitoring database.

The current draft MCL of 10 ppb will, if adopted, have dire economic consequences to the District's financial stability, cause severe impacts on the District's ability to provide water for health and safety purposes, cause severe economic hardship to the District's customers and adversely impact agriculture, such as the area's vineyards. Considering the costs of compliance to the District, its customers, and other affected parties, including the cost per customer and aggregate cost of compliance, the MCL as drafted is economically infeasible for the District. The MCL provides no demonstrated public health benefits when weighted against the cost of

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compliance and the option of adopting a higher MCL, which would still protect public health and safety. The MCL is not supported by current science.

The District requests that the MCL contain an exemption for small water systems, such as the District, that would be financially crippled by this rule. Failing an exemption, and based on existing science, the District believes that a more reasonable MCL of 25 ppb would sufficiently protect public health and enable the District to continue to operate without the devastating impacts that will be caused by the proposed MCL. This approach would provide a more sensible stepped approach to protecting public health while allowing time for further studies to be conducted on the potential health effects based on ingestion of naturally occurring hexavalent chromium. Regardless of the ultimate Cr(VI) MCL adopted, the District requests that CDPH revise the draft Cr(VI) MCL to create an implementation schedule to allow a sufficient period of at least two to three years for agencies to study how they will plan, design, finance, permit, and construct facilities to comply with the proposed rule.

District Water Supply and Distribution System Background.

The District is located in the central portion of Santa Barbara County, serving a population of approximately 6,737 (excluding the City of Solvang), including the communities of Santa Ynez, Los Olivos, and Ballard, the Chumash Indian Reservation and the unincorporated areas in-between. The District also supplies domestic water to the City of Solvang. The District provides water to approximately 2,498 municipal and industrial accounts, plus 110 agricultural accounts, through approximately 95 miles of distribution and transmission lines.

The District has four sources of water supply: 1) groundwater pumped from the Upland Basin, which underlies the District; 2) the District's rights to underflow of the Santa Ynez River; 3) water purchased from the United States Bureau of Reclamation's Cachuma Project; and, 4) State Water Project (SWP) entitlement. The District's Cachuma Project water annual entitlement of 2,651 AF is now equally exchanged for State Project water entitlement owned by water agencies on the South Coast of Santa Barbara County. On average, the District receives delivery of its water from the SWP, as follows: 39% as Cachuma Project entitlement, 1% by direct diversion from Cachuma Lake, and 8% State Water exchange. Groundwater supplies include approximately 27% pumped from the Upland Basin and approximately 25% from the Santa Ynez River alluvium. These sources combine to supply the District's average annual water demand of 5,700 AF.

The District appropriates groundwater from the Upland Basin based prescriptive rights in the basin since 1968. The District presently operates its Upland Wells as a banked water source for two primary purposes. First, the Upland Wells are the primary source of water for the upper pressure zones of the District's service area. Second, it is an essential source of water supply during dry periods (i.e., drought), resulting from reductions in the SWP water sources due to institutional constraints, to supplement

Cachuma Project water shortages, and for purposes of meeting high demand periods, such as during vineyard frost protection events and peak agricultural use during summer months.

The total production currently available from the District's eight active production wells in the Upland Basin is over 6,100 gpm. The Upland Wells are separated by distances ranging from 2,000 feet to 4.3 miles and are strategically located and designed to meet the required flow rates between 260 gpm and 1,250 gpm, while minimizing interference between the wells. The Upland Wells are integrated into a network of distribution lines within the District's 10,850-acre service area. Current treatment of pumped water is limited to chlorine injection at each well head prior to entering the distribution system (i.e., there is no centralized treatment of these wells). Additionally, the distribution system is gravity fed from three reservoir locations, requiring the maintenance of three pressure zones across an elevation differential of over 950 feet. Water is boosted from lower pressure zones to higher pressure zones through four booster pump stations. The Upland Wells are located only in the two higher pressure zones as depicted in the attached figure. These wells also serve to pressurize the distribution system during higher customer demand periods.

Adverse Water Supply Implications of the Proposed MCL.

The District has historically operated its river wells, State Project water deliveries, and Upland Wells conjunctively to maximize the reliability of water available to the District, using the Upland Basin as a "banked" water source. Typically, the SWP deliveries (i.e., Cachuma and SWP entitlement) are maximized, to the extent feasible. River well production is secondarily utilized as a less expensive source (when available). And the balance of the District's demand is made up by Upland Basin groundwater pumping. The Upland Wells have regularly been relied upon for meeting high demand periods such as maximum hour demand, vineyard frost protection, peak agricultural use, and fire flow demand should the need arise. Annual water supply from the eight Upland Wells has averaged 1,182 AF over the past ten years but historically reached an annual peak of 5,336 AF.

Without use of the Upland Basin as the District's "water bank", impacts of the proposed regulation will be exacerbated by the current water shortages and drought conditions prevalent locally and across the State. For example, the SWP deliveries are currently estimated at 20% for the 2013/14 water year which results in well below average SWP deliveries to the District. Additionally, SWP allocations below 21% affect the amount of water available for the District to exchange its Cachuma Project entitlement with South Coast water agencies as described above. Also in jeopardy, is the Cachuma Project supply which is currently at 46% capacity and, without significant rain this winter, is anticipated to be out of water by the middle of the 2014/15 water year, based on current diversion rates, ESA required fish releases and scheduled water deliveries. Under current conditions, the anticipated use of the Santa Ynez River alluvial wells is also in jeopardy as they are dependent upon climatic conditions (i.e., runoff and flow in the

river) as well as water being available in the Cachuma Project for “release” to accommodate downstream water rights.

As the above discussion illustrates, the loss of the Upland Wells, even temporarily, will result in an extreme water supply shortfall to meet the average District water supply demands. The high likelihood of an extended drought conditions has the potential to restrict or eliminate one or more of the District’s three non-Upland Well water sources. Without the use of the Upland Wells, an exemption from the final MCL (e.g., financial hardship), a modification (i.e., increase) of the MCL, or an attainable and reasonable implementation schedule following the final ruling, the District would severely constrained or be without sufficient water to serve its customers.

As stated above, the District derives its water supply from multiple sources, including the SWP, Cachuma Project, wells in the Santa Ynez River alluvium, and the Upland Wells. Each source of supply has unique conditions and constraints that can limit its yield from year to year. The Upland Wells serve an essential primary and supplement role in meeting the District water supply needs.

The District derives about 25% of its supply from seven shallow wells that pump from the Santa Ynez River Alluvium and serve Zone 1. Since these shallow alluvial wells are not treated as surface water, CDPH does not allow use of these wells without filtration when river flow is within 150 feet. When river flows reach flood stage, these wells are susceptible to damage. This source is further limited by the District’s water right licenses issued by the State Water Resources Control Board. Because this source is subject to regulatory restrictions and variability in the flow of the Santa Ynez River, it is not always available.

The District derives the remaining 27% of its supply from eight deep wells that pump from the Upland Basin. The Upland Basin is a reliable source of supply and a critical source if problems with availability arise with the other sources. Further, due to the configuration of the District system, the Upland Wells are essential for meeting demands in the highest part of the District system, Zone 3, as explained below.

The Upland Wells contain concentrations of Cr ranging from ND to 35 ppb and Cr(VI) ranging from 4.6 to 32 ppb. Only one of the District’s Upland wells, Well 5 which contains Cr(VI) at 4.6 ppb and Cr at 20 ppb, would likely meet the 10 ppb Cr(VI) MCL, but only has a minimal pumping rate of 260 gpm, so it is of little assistance in meeting peak demands.

The District’s distribution system was designed and configured based on the presumed usability of Cachuma /SWP water and alluvial well water to serve the lower pressure zones, Zones 1 and 2, and Upland Wells water to serve the higher zone, Zone 3 and a portion of Zone 2. Based on the maximum measured total and hexavalent chromium concentrations in each well (ND – 35 ppb and 4.6 ppb– 32 ppb, respectively), the proposed MCL would render seven of eight Upland wells unusable, resulting in a loss of existing production capacity of 5,900 gpm of the existing total capacity of 6,160 gpm. In

doing so, the proposed MCL would render the District system incapable of adequately serving Zones 2 and 3 because, as currently configured, the District system does not have the hydraulic capacity to convey water from the remaining useable sources (located in Zone 1) to Zone 3 in a way that meets required system pressures and flow demands. The pumps and pipelines were not sized for this purpose. These wells are utilized to pressure the distribution system.

CDPH Cost of Compliance Estimates Are Vastly Understated.

The District performed a hydraulic modeling analysis to determine system modifications that would be needed in order to render the system capable of meeting minimum required system pressures and flow demands utilizing useable sources, not including water required for frost protection for vineyards. The analysis found that new pipelines and booster pumps costing \$3.5 million would be needed to provide minimum required system and flow demands (not including frost protection). Additional O&M cost of about \$60,000 per year for water pumping costs would be incurred under this scenario.

Further hydraulic modeling analysis found that with none of the Upland Wells useable, Upland Wells 25, 27 and 28 were essential to meeting minimum system pressures and flow demands under the current system configuration. These wells would require treatment under the proposed MCL. Because these wells are situated far apart, combined centralized treatment is not feasible. Two individual treatment plants will be needed. There are two treatment methods available for Cr(VI) removal, ion exchange (IX) and reduction, coagulation, and filtration (RCF). The District's engineers estimated the costs for treatment using the Water Research Foundation on-line cost estimator. For IX capital costs range from \$10.1 million to \$35.8 million with annual O&M costs ranging from \$670,000 to \$2.1 million. For RCF, capital costs range from \$13.7 million to \$29.3 million and annual O&M costs range from \$730,000 to \$1.6 million. The cost for land acquisition, if land is even available, would further increase the capital cost. The five additional wells will require treatment to provide system pressure for frost protection for vineyards and provide backup supply for Wells 25, 27 and 28 in case one of these wells is not functioning during a fire flow event.

Both the IX and RCF processes produce a waste byproduct, and the issue of waste disposal calls into question whether or not treatment is even feasible given the inland location of the District. Treatment of the three wells using IX would produce approximately 72,000 gallons per day of salt brine containing 53,000 mg/L of salt and 13,000 ppb of Cr. The waste created by treating the additional five wells would significantly increase the volume and treatment costs. Treatment using RCF would produce approximately 17,300 gallons per day of backwash water that contains 530 ppb of Cr. Located about 50 miles inland, the District does not have ready access to a wastewater treatment plant (WWTP) with an ocean outfall that could accept these wastes. The nearest WWTP is located in the City of Solvang, about 10 miles away and discharges to the Santa Ynez River under a waste discharge permit issued by the Regional Water Quality Control Board. The IX and RCF waste byproducts would need

to be trucked to this WWTP at great cost. However, it is unknown whether or not this WWTP could accept the waste and comply with its waste discharge requirements. Disposal using evaporation ponds would be land intensive and costly.

The following table summarizes the District's estimated costs of compliance with the draft MCL at 10 ppb. As the table below demonstrates, the costs to the District greatly exceed CDPH's estimates for cost of compliance in its Initial Statement of Reasons (DPH-11-005) for relatively small agencies such as the District.

Cost Summary

Item	Capital Cost (\$)	¹⁾ O&M Cost (\$/year)	²⁾
Treatment			
IX	10.1 to 35.8 million	670,000 to 2.1 mill.	
RCF	13.7 to 29.3 million	730,000 to 1.6 mill.	
Infrastructure Improvement	3.5 million	60,000	

¹⁾ Does not include land acquisition and environmental compliance costs

²⁾ Does not include waste disposal costs

As noted, these cost estimates do not include the costs of land acquisition around the wells, which the District estimates at costs per zone of \$500,000 to \$1.5 million for minimum number of wells and \$1.0 million to \$3.0 million for the recommended total number of wells treated. Further, waste disposal costs will also increase O&M costs. Additional land acquisition and pipeline installation costs would be incurred if acquisition of land near the wells is not possible, requiring land purchase at an undetermined distance from the wells.

The total annual capital cost to the District, based on twenty year financing, is conservatively estimated between \$1.125 million and \$3.25 million dollars. When annual estimated O&M costs are added to these amounts, the total annual estimated cost increases to between \$1.8 million and \$5.35 million dollars. As an example, the impact of these additional costs on domestic customers would require a rate increase of twenty-one percent (21%) to sixty percent (60%). These costs are significantly greater than projected by CDPH and would impose an undue burden on the District's customers.

The District also encourages CDPH to carefully consider the technical analysis of the proposed MCL's treatment cost estimates submitted by the Association of California Water Agencies and others. There are additional costs associated with the treatment

technologies which have not been incorporated into the proposed MCL's treatment cost estimates. While the Initial Statement of Reasons acknowledges that "[t]reatment costs for small water systems are significantly higher than those for large water systems," the District believes the Initial Statement of Reasons nevertheless vastly underestimated the costs of noncompliance for smaller systems.

CDPH has indicated that it is prohibited from providing any funding to small systems, such as the District, leaving the District to recover the cost of compliance from its customers. The District has recently increased its water rates across all customer classes to more accurately recover the costs of service. In order to raise sufficient capital to cover these increased costs, the District would have to substantially increase water rates as discussed above, further burdening its customers.

Immediate Adverse Impacts to the District's Water Supplies and Its Customers.

Should the proposed MCL be approved and implemented as currently proposed, it will have immediate and extreme adverse effects on the District's ability to serve District customers. As proposed, the MCL does not provide time for the necessary planning, design, financing, permitting, and construction of facilities to comply with the proposed rule. As a result, the District would be unable to utilize the Upland Wells until treatment facilities could be put in place which would take several years to implement. The likely immediate water supply impacts to the District and its customers would include but not be limited to, the following:

1. Agricultural water service would be the first to be shut off during supply shortages, peak demand periods and for frost protection events resulting in damage to crops and economic hardship to agricultural customers, in particular, vineyard owners. This is in sharp contrast to the CDPH's Fact Sheet's conclusion that the potential economic effects will be minimal.
2. The District would be required to implement water scheduling and/or rationing for crop irrigation in the summer months in an effort to minimize irrigation demand peaks and avoid conflict with potable domestic water availability needs for health and safety purposes.
3. With the immediate supply shortfall, the District would need to issue a moratorium on new water service connections, for both agricultural and domestic services.
4. The District would not have sufficient water capacity and pressures to meet fire flows in the event of a significant fire event thus endangering health and safety.

In addition, as discussed above, the financial impact to the District and its customer would be crushing, requiring a rate increase of twenty-one percent (21%) to sixty

percent (60%) for domestic customers. Other customer classifications would be similarly affected.

Further Scientific Study is Needed on the Appropriate MCL Necessary to Protect Public Health

California's Office of Environmental Health Hazard Assessment (OEHHA) in July 2011 published a final Cr(VI) public health goal ("PHG") of 2 ppt. At this level, it was estimated that not more than one person in 1 million who consumes a half-gallon of water daily for 70 years would be expected to develop cancer as a result of exposure.

In developing the PHG of 2 ppt, OEHHA relied upon data calculated from cancer observed in the National Toxicology Program ("NTP") rodent study completed in 2007. Specifically, this calculation is based on cancer found in the small intestines of 5 of the 50 male mice exposed to drinking water containing 90,000 ppb of Cr(VI) for 2-years or the typical life span of a mouse. The male mice in this study that received doses of 5,000 ppb, 10,000 ppb and 30,000 ppb showed no statistically significant increase in cancer when compared to cancer observed in control mice receiving no Cr(VI) in their drinking water. It was also the case that female mice, male rats and female rats used in the NTP study showed no increase in cancer after ingesting Cr(VI) in their drinking water for a 2-year life span at levels up to 600 times higher than MCL level of 50 ppb for all forms of chromium (total chromium).

While this data clearly shows a threshold below which no increased cancer was observed in the rodents, OEHHA used a default linear dose response model when there is insufficient data to explain the mode of action by which the five male mice developed cancer in their small intestines. This gap in science was used by OEHHA to move forward with a precautionary linear model assumption and to disregard the fact that no increased cancer was found in rodents when Cr(VI) levels in their drinking water were less than 1,000 times greater than the current drinking water MCL for chromium.

Since the PHG was finalized, over the past year, ToxStrategies has released the results of its research on the toxicity of Cr(VI) and its "mode of action" (how it causes cancer in the body). The research was also designed to provide information on the differences between rodents and humans with regard to internal dose and develop the models and data needed to do a state-of-the-art risk assessment using NTP's January 2007 findings in its report, NTP Technical Report on the Toxicity Studies of Sodium Dichromate Dihydrate (CAS No. 7789-12-0) Administered in Drinking Water to Male and Female F344/N Rats and B6C3F1 Mice and Male BALB/c and am3-C57BL/6 Mice. ToxStrategies' research found that its risk assessment using new mode of action (MOA) study data supports the current federal MCL (100 ppb) as protective for sensitive human subpopulations.

The District joins in the comments of ACWA regarding the need for further studies to determine an adequate level of protection of the public health while also striking an

appropriate balance with economic feasibility, particularly for smaller systems such as the District.

Implementation Schedule

As currently drafted, the Cr(VI) MCL will become enforceable as soon as it is finalized and does not provide for an implementation period to plan, design, fund, permit and construct Cr(VI) treatment facilities. Even with the District having proactively addressed the District's Cr(VI) treatment needs, the District cannot fully plan or complete the design, construction, and startup of an optimal Cr(VI) full-scale treatment system in the timeframe that CDPH intends to finalize the Cr(VI) MCL.

For example, in order to fully comply, the District would require time to select and design a treatment system, undertake environmental review, acquire property surrounding the District's small wells sites necessary to install such treatment systems on its wells, and secure funding for the treatment systems, publicly bid and hire a contractor, install and set up the treatment system, all for each well located throughout the District's system in a very short amount of time. Such a schedule is financially and procedurally infeasible.

The CDPH approach to adopt new MCLs enforceable as soon as they are final is in sharp contrast to new regulations implemented by the USEPA that include an implementation schedule, providing a reasonable timeline for water systems to comply. For example, the Arsenic MCL FINAL STATEMENT OF REASONS, Arsenic Primary Maximum Contaminant Level (MCL) Revision Title 22, California Code of Regulations (DPH-17-04) (2008) amended Health and Safety Code section 64432 to "provide a six-month timeframe for water systems and their laboratories to prepare for the implementation of a newly adopted MCL." In contrast, EPA's arsenic regulations allow 3-5 years for implementation from the date the regulations were passed. At the very least, CDPH should revise the draft Cr(VI) MCL to allow a sufficient period for agencies to study how they will comply and to prepare for compliance. The District suggests a minimum of 2-3 years before any Cr(VI) MCL takes effect.

Without an implementation schedule, the District will be forced to implement treatment on a very short timeline, based on a draft regulation, or be out of compliance. The consequences of a failure to comply would be dire for District customers, as discussed above, with moratoriums and denial of service to potential new customers. While we understand that a change to existing California law may be needed for CDPH to include an implementation schedule, we suggest CDPH do so to allow for cost effective compliance with the final MCL.

Conclusion

The District strongly supports clean, safe drinking water for District customers and community. However, the cost to build and operate treatment facilities to bring the District's drinking water into compliance with the proposed MCL would be crippling

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expensive and create an unnecessary economic hardship for all District customers. The impact of the proposed rule far exceeds CDPH's cost estimates for compliance for the District's size of water system. The District urges CDPH to reconsider its current proposal and adopt a higher MCL that will continue to protect health while better balancing the economic feasibility of compliance with avoiding an undue financial burden on public water agencies and their ratepayers.

Sincerely,



Chris Dahlstrom
General Manager

cc: Board of Trustees, SYRWCD, ID No. 1
Gary M. Kvistad, General Counsel, Brownstein Hyatt Farber Schreck