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TAKING THE WASTE OUT OF WATER
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December 15, 2014

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Submitted electronically to commentletters@waterboards.ca.gov

SUBJECT: COMMENT LETTER SAFE DRINKING WATER PLAN

Dear Ms. Townsend:

The Sacramento Regional County Sanitation District (Regional San) appreciates this opportunity to provide comments on the October 6, 2014 Draft Safe Drinking Water Plan for California (Plan). Regional San provides wastewater treatment for over 1.4 million residents and businesses in the Cities of Sacramento, Folsom, West Sacramento, Elk Grove, Rancho Cordova, Citrus Heights, the communities of Courtland and Walnut Grove, and portions of the unincorporated areas of Sacramento County.

The document prepared by the State Water Resources Control Board (State Water Board) addresses surface and ground water quality concerns to protect the state's drinking water supply. We have identified several presumptions and assertions within the Plan, which appear to be inaccurate or insufficiently supported. Regional San's overarching concerns are outlined below in comments 1-4, followed by more detailed comments on specific sections in comments 5-19.

Regional San's General Comments on the Plan

Comment 1: There is insufficient identification of the need for watershed management modeling to better understand the costs and benefits of management actions within a source watershed.

Modeling tools are necessary to provide essential information, improve coordination, identify effective management actions, and ensure source water protection.

Comment 2: There is an insufficient explanation of the evaluation methodology for prioritizing contaminants and issues of concern.

The report identifies pathogens and disinfection byproducts (DBPs) in surface waters as the issues of highest concern, seemingly based on a 20- year old evaluation. However, the basis for this concern is not specifically stated, though it implies that it is based on the perceived need for increased drinking

water treatment based on ambient levels of these parameters. The report also does not clearly state that the biggest current water supply issue is the high level of nitrates in groundwater, but instead focuses significantly on surface water contaminants. The document should provide a more comprehensive and transparent evaluation to the prioritization and stated emphasis.

Comment 3: The conclusion that urbanization causes drinking water degradation is generally stated without support.

The report states as fact that urbanization will cause drinking water degradation. This statement is not valid for most parameters of concern in the Central Valley, and likely elsewhere. To support the development of the Central Valley Drinking Water Policy, various technical studies were conducted by the Central Valley Drinking Water Policy Workgroup. During the analysis, approximately 450,000 acres of new urbanization was projected in the modeled tributary area to the Delta by 2030. It was hypothesized that urban loads would increase with the projected 50% increase in urbanized area between 2011 and 2030. However, this hypothesis was shown to be invalid for many parameters of concern for several reasons. First, the area of projected urban growth was offset by decreases in natural land cover and agricultural areas that can have higher per acre loadings of several parameters of concern (organic carbon, nutrients, and total dissolved solids) than urban areas. Second, a combination of increasing wastewater treatment and best management practices for urban runoff and agriculture were shown to result in net decreases in loadings of organic carbon and nutrients, despite population increases.

Comment 4: Treated wastewater is incorrectly referred to as "sewage" and is unnecessarily called out as the sole contaminant source in sections of the report. Similarly, terms such as drinking water supply, source water, and public water supplies have been used interchangeably, leading to confusion.

In the discussion sections for Contaminants of Emerging Concern and NDMA, treated wastewater discharge is identified as the only discharge source. The report should not focus unnecessarily on treated wastewater as the source of contaminants, when other sources exist but are unidentified, such as natural, urban runoff, and agriculture. The discharge of treated wastewater into groundwater and surface waters is regulated through National Pollutant Discharge Elimination System (NPDES) permits and may not be the most significant source of these and other contaminants in surface water and groundwater. The report has mixed the terms "wastewater", "treated wastewater", and "sewage" so that it is not clear to the reader which term is actually meant in various sections of the report. A similar confusion of the terms "drinking water supply", "water supply", "source water" and PWS is also found in the document.

Regional San's Detailed Comments on Specific Sections of the Plan

The following comments are provided to clarify and/or correct items, sections, and concepts presented in the Plan. Text additions are shown underlined in green and text deletions are shown in red-strikethrough.

Comment 5: Section 3.1.2.1, page 37, Recycled Water.

This section does not include an adequate discussion of the Recycled Water Policy which regulates the use of treated water supplies from publicly owned treatment works (POTWs). These regulations are significant and protective of water supplies, especially in the case of indirect reuse. Regional San requests the inclusion of a more detailed description of the Recycled Water Policy and its protection of indirect reuse, and the addition of the following text to this section:

The State of California Recycled Water Policy and the California Code of Regulations Title 22 are the basis for recycled water permitting for non-potable use and indirect reuse. These regulations comprehensively identify allowable uses that can safely augment water supply volumes. The permitting programs protect drinking water through water quality monitoring, treatment, management plans, and evaluations.

Comment 6: Section 3.2.1.1, page 38, Microbiological Contaminants.

This section includes a very brief discussion of sources of microbiological contaminants and the current or expected impact on drinking water treatment requirements. The discussion is unclear regarding the sources of microbiological contaminants and does not include citations or references for the statements. Regional San recommends the inclusion of a more detailed summary of the drinking water sources that are currently impaired due to microbiological contaminants such that higher levels of water treatment are required (e.g., for Cryptosporidium, those with bin level greater than 1). The following revisions are also recommended to this section:

Microbiological contaminants, historically of public health concern and the basis for water treatment and disinfection for the prevention of infectious disease, ~~are generally considered to be a greater concern for surface water sources than for~~ are of concern in both surface water and groundwater sources. Disinfection of treated wastewater is required for all POTW surface water discharges. Properly treated and disinfected POTW wastewater discharges to surface water has not been known to cause impairment of drinking water beneficial uses in California. ~~Nevertheless, g~~Groundwater ~~contamination by~~ microbiological ~~contaminants~~ contamination ~~may be a concern~~ is more likely when water wells are improperly sealed, or when there is release of untreated sewage or septage directly into groundwater. Groundwater also may be at risk of microbiological contamination when it is under the influence of surface water (for example, when shallow groundwater is near a stream).

Comment 7: Section 3.2.2.1, page 40, Microbial Contaminants.

This section emphasizes wastewater treatment plants as the predominant source of pathogens in rivers and streams. However, there are other relevant sources of pathogens including recreation, urban and agricultural runoff, and non-anthropogenic sources.

In 2002, a Central Valley Drinking Water Policy Workgroup (Workgroup) was formed to provide a stakeholder-based platform for development of a drinking water policy. The purpose of this work effort was to address and evaluate issues of concern to drinking water agencies that derive their water supply from the Central Valley and Sacramento-San Joaquin Delta (Delta). To support the development of a Central Valley Drinking Water Policy, various technical studies were conducted by the Workgroup. Accordingly, conceptual models of various constituents of concern were developed to gain an improved understanding of sources, transformations, transport processes and associated impacts.

The Conceptual Model for Pathogens and Pathogen Indicators in the Central Valley and Sacramento-San Joaquin Delta study (Tetra Tech, 2007) assessed sources and spatial trends of pathogen and pathogen indicators in the Central Valley and Delta. The study area covered 43,300 square miles encompassing the Sacramento and San Joaquin watersheds and the Delta. The conceptual model provided a compilation and evaluation of available data and qualitatively described the key processes of constituent fate and transport. Water quality data for fecal indicators such as total coliform, fecal coliform, *Escherichia coli* (*E. coli*) and pathogens such as *Cryptosporidium* and *Giardia*, was compiled from the Drinking Water Policy Workgroup (2004-2005) database, Natomas East Main Drainage Canal (NEMDC) Studies, North Bay Aqueduct Sampling, and the United State Geological Survey (USGS) National Water Information System (NWIS). Some agricultural discharges, runoff from urban land, wastewater effluent discharges, and terrestrial wildlife (except aquatic wildlife which was not quantified) were all considered as potential sources.

High coliform and *E. coli* concentrations were observed in waters affected by urban and agricultural runoff. **Wastewater treatment plant effluent was not found to be a significant coliform source**. Levels of coliform were also high in wetland areas, probably due to aquatic wildlife activity. The Lower Sacramento River was observed to have low pathogen levels (equivalent to levels produced by excretion from one calf). Data for pathogenic organisms was available primarily for *Cryptosporidium* and *Giardia* along the Sacramento River. Where monitored, concentrations were generally very low, and when detected counts were typically less than one organism per liter. The Workgroup concluded that although limited available data prevented a full watershed-scale quantitative analysis of sources and transport, qualitative analysis indicated that wastewater effluent and runoff from urban, agricultural and wetlands are potential sources of pathogens and fecal indicator loads (Central Valley Drinking Water Policy Workgroup Synthesis Report, February 21, 2012).

As such, although wastewater effluent is a potential source of pathogens and fecal indicator loads, microbial contaminants levels are generally sufficiently low such that wastewater does not pose a high risk of microbial contamination. Moreover, permitted wastewater treatment plants are required to substantially remove pathogens, to a level as determined in individual NPDES permits, and typically do not discharge "inadequately treated wastewater".

Drinking water agencies are required to provide varying levels of treatment based on the pathogen levels in their raw water supplies. The Safe Drinking Water Act (SDWA) has been highly effective in protecting public health and has also evolved to respond to new and emerging threats to safe drinking water. Amendments to the SDWA in 1996 require the United States Environmental Protection Agency (EPA) to develop rules to balance the risks between microbial pathogens and disinfection byproducts (DBPs).

EPA developed the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR or LT2) to improve drinking water quality and provide additional protection from disease-causing microorganisms and contaminants that can form during drinking water treatment. The purpose of the LT2 rule is to reduce disease incidence associated with *Cryptosporidium* and other pathogenic microorganisms in drinking water. The rule applies to all public water systems that use surface water or ground water that is under the direct influence of surface water. Specifically, the rule targets additional *Cryptosporidium* treatment requirements for higher risk systems. Filtered water systems are classified in one of four treatment categories (bins) based on monitoring results of their water sources. **Most systems are expected to be classified in the lowest bin and will face no additional requirements based on studies performed under the direction of the Drinking Water Policy Workgroup**. Currently, water agencies treating water from the Sacramento River and the Delta fall into Bin 1 of the LT2ESWTR, meaning that *Cryptosporidium* levels are sufficiently low so no additional treatment is required.

Due to the fact that the Plan does not comprehensively evaluate all sources of pathogens and microbial contaminants levels are generally sufficiently low, it is inappropriate to conclude that potential unacceptable health risks due to microbial contamination are primarily the result of discharges from wastewater treatment plants. Regional San requests the following revision to this section:

~~*Inadequately treated wastewater from treatment plants that discharge*~~ *Natural and anthropogenic sources of pathogens into rivers and streams may result in elevated levels of pathogens (e.g., viruses, bacteria, Giardia, Cryptosporidium)* ~~*and*~~ *that would pose unacceptable health risks to those who use the surface water for supply of drinking water; the Water Boards issue permits to require treatment preventing such discharges. Runoff from agricultural and urban areas is regulated by the Water Boards and the requirement for the disinfection of wastewater has decreased the occurrence of pathogenic material in wastewater effluent.*

Comment 8: Section 3.2.2.1, page 40, Microbial Contaminants.

The report should evaluate all sources of contaminants and discuss the impacts of localized sources of pathogenic materials from untreated sources. Regional San requests the following revisions to this section:

Microbiological contaminants may also reach groundwater ~~*supplies*~~ *through untreated or partially treated sewage leaking from septic systems (septage) or from wastes from confined animals' feeding operations. Wildlife and facilities that enhance wildlife habitat can also be a source of pathogens. The fate and transport of pathogenic organisms from these dispersed sources to drinking water intake or supply locations is not well understood and should be studied further. These kinds of contamination sources are generally rural in nature, and would be more likely to pose risks of contamination to private well owners and small PWS, especially in rural areas, than they would to larger urban PWS.*

Comment 9: Section 3.2.2.2, page 41, Chemical and Radiological Contaminants.

It is unclear whether this discussion is specific to groundwater, surface water, or water delivered in the distribution system. Most of the references included are applicable to groundwater, and surface water is generally just referred to as an indirect source. In addition to the enforceable standards called "maximum contaminant levels" or "MCLs" the EPA has established through the National Primary Drinking Water Regulations (NPDWR), National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards for 15 contaminants. EPA does not enforce these "secondary maximum contaminant levels" (SMCLs). SMCLs are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to cause a risk to human health at the SMCL. As such, characterization is most appropriate as a drinking water treatment issue rather than a source water issue. Regional San requests the section be edited as follows:

The most commonly detected organic contaminants in water supply testing following drinking water treatment are TCE and PCE, and the banned nematocide DBCP, as well as disinfection byproducts such as the trihalomethanes and haloacetic acids. Other contaminants of more recent concern are methyl tertiary butyl ether (MTBE), 1,2,3-trichloropropane (1,2,3-TCP), 1,4-dioxane, and N-nitrosodimethylamine (NDMA).

Comment 10: Section 3.2.2.3, page 46, Chemicals of Emerging Concern (CECs).

This section emphasizes wastewater and recycled water as the source of CECs. However, NDMA and other CECs may also be present in groundwater and surface water from stormwater and agricultural runoff, industrial discharges and from certain fuel contamination in soils. While recycled water is an important component of the State's water plan, wastewater and recycled water should not be emphasized as the only source or as the primary source for CECs.

Additionally, the term CEC encompasses a broad classification of contaminants of emerging concern and, thus, does not only refer to those of specific interest in wastewater. The language should precisely state the contaminants that are of concern and their known sources or generally refer to unknown constituents of potential concern. Regional San requests the following revisions:

Chemicals of Emerging Concern (CECs) are a number of chemicals that are present ~~in wastewater~~ from various sources and, therefore, may reach surface water or groundwater supplies ~~of~~ used as sources of drinking water. These chemicals include pharmaceuticals, personal care products, household products, and hormones among others, as well as their breakdown products. Some are considered to be endocrine disrupting chemicals, in that they may mimic the action of hormones, particularly female and male sex hormones.

Comment 11: Section 3.2.2.3, page 47, Chemicals of Emerging Concern (CECs).

This section addresses membranes as an implied best treatment technology for CEC removal. Membranes do not remove all CECs and should not be identified as the preferred treatment technology. As stated in the State Water Board Science Advisory Panel on Chemicals of Emerging Concern in Recycled Water April 15, 2010 Draft Panel Report Communications Fact Sheet, "In addition, many CECs are removed or reduced in conventional wastewater treatment facilities." NDMA and other CECs may originate in groundwater from sources other than recycled water, such as stormwater and agricultural runoff, industrial discharges and certain fuel contamination in soils. Regional San requests the following revision:

The replenishment or recharge of groundwater basins with recycled water continues to involve more basins and will increase, in terms of percent of the contribution of treated wastewater, in existing projects. Contamination of a groundwater basin by chemical contaminants (NDMA, 1,4-dioxane) in wastewater has already occurred (in the late 1990s in an Orange County water recycling project), which prompted new attention to wastewater treatment and industrial source control. Monitoring will determine if similar incidents will occur in newly recharged basins or in existing basins using more recycled water. ~~Improvements in the design and construction of membranes used as part of the treatment process may reduce the likelihood of such occurrences.~~

Comment 12: Section 3.2.2.3, page 46, Chemicals of Emerging Concern (CECs).

This section addresses population increases and relates those increases to water quality impacts. Changes in the future relative contributions from wastewater and other discharge sources to receiving waters are more complex than a simple linear trend based on projected population growth. In many areas of California, there is an increasing trend of water recycling and water conservation to reduce or remove surface water discharges. Climate change, water transfers, monitoring and treatment technology, and the increase in water demand across the state are significant considerations when discussing the quality of water supply that are not considered in this document.

Additionally, beneficial uses are protected by the State Water Board through NPDES permitting, Total Maximum Daily Load (TMDL) programs, the Antidegradation Policy, and the Sources of Drinking Water Policy. Regional San recommends the following revisions:

~~*Even though t*~~*The Water Boards have addressed CECs for groundwater recharge. CECs* ~~*from*~~ *can enter surface waters from both urban and non-urban sources* ~~*wastewater are also present in surface water sources into which wastewater is discharged*~~*. Regulation of wastewater discharge through the NPDES program includes consideration of the Antidegradation Policy and TMDL compliance to protect impairment of existing and potential beneficial uses. Moreover, the Sources of Drinking Water Policy is also intended to protect waters from impairment of drinking water beneficial uses. However, effects from climate change and increases on water supply demand may degrade water quality.* ~~*As the state's population grows, the volume of treated wastewater from municipal sewage treatment plants can be expected to increase. Since no increase is anticipated in the volume of natural water supply from rainfall, the percentage of treated wastewater in the receiving water bodies (discharge-receiving water bodies) will likely increase. A point may be reached when the percentage of wastewater is high enough that the approval of the recipient stream as a source of drinking water will be questioned, especially if CECs are detected at higher concentrations.*~~ *DDW,* ~~*and*~~ *the Regional Water Boards, and DWQ will continue* ~~*coordinate*~~ *coordination to* ~~*ensure that no losses of drinking water supplies occurs as a result*~~ *protect drinking water beneficial uses. Watershed modeling can be a useful tool to predict future water quality and to provide cost-effective solutions related to source water protection.*

The current recommendations for monitoring of CECs in surface waters based on human and aquatic health are contained in the Monitoring Strategies for Chemicals of Emerging Concern (CECs) in California's Aquatic Ecosystems dated July 25, 2012.

Comment 13: Section 3.2.2.4, page 48, Wastewater.

This section indicates that population increases result in an increase in discharge from industry and municipal sewage into surface waters and groundwater. Municipal sewage is typically regulated by NPDES permits and is treated prior to discharge in urban areas. Population increase alone should not be directly attributed to discharges from Publically Owned Treatment Works (POTWs) or industry without an evaluation of land use, urban use, water conservation, etc. The section also incorrectly suggests that untreated sewage is discharged into drinking water. Regional San requests the following revision to this section:

~~*As the state's population grows, there are commensurate increases in the volume of waste discharges from industries and municipal sewage. These discharges, except along the coast, are into rivers and streams (surface waters) or groundwater used as drinking water supplies. In the past, those discharges have been just minor contributors to the drinking water supply (generally less than five percent in most supplies); however, the increase in the population is increasing the percentage of sewage in drinking water supplies.*~~ *Population increases and land use changes should be evaluated to better understand future available water supply and impacts to water quality. Other factors such as climate change, changes in agricultural water demand, water conservation, land use, and inter-basin water transfers will continue to impact localized water supplies. While population growth may increase the number of users, wastewater treatment and water conservation minimize the impact and reduce the per capita volume of treated wastewater discharged. Higher quality treated wastewater and improved land use development practices mitigate the effect of population increases on the*

loadings of many parameters, as demonstrated for organic carbon and other constituents in the Central Valley Drinking Water Policy Synthesis Report. Comprehensive studies and modeling approaches are needed to evaluate the effect of these factors in other regions and additional constituents of particular concern.

Regional San requests that the recommendations on page 99 also include the development of watershed management models through a stakeholder process.

Comment 14: Section 3.2.2.4, page 48, Wastewater.

This section leaves out natural sources of constituents of concern to drinking water such as water fowl (pathogens) and wetlands, forest land, and wildfires (organic carbon). Also, the purpose of this statement shown below should be clarified. As stated, the discussion suggests that new pristine sources should be located and that filtration should not be necessary for these new sources. Regional San requests the following revisions:

When water supplies are not affected by wastewater or other human activities, the chance for contamination is diminished, though "natural" sources can contribute to drinking water impairment, especially when the conveyance time is long and the water passes through wetland or flood prone areas. The water supply from Hetch-Hetchy that San Francisco uses is an example of a relatively pristine surface water supply that is not required to be filtered. However, such pristine sources are relatively rare.

Comment 15: Section 3.2.2.8.2, page 51, Limits on Industrial Releases into Drinking Water Supplies.

The section incorrectly links wastewater discharges to groundwater contamination from unregulated industrial discharges. Regional San recommends the following revisions:

Due to the widespread contamination of several groundwater basins, the State Water Board and the Regional Water Boards have been even more diligent in controlling discharges of industrial wastes to prevent further contamination of groundwater basins and have issued clean-up orders statewide. ~~The regulation of wastewater discharges from larger facilities into surface water supplies now includes requirements for industrial source control, whereby industries must limit chemical releases into wastewater collection systems.~~ Industrial NPDES permits, Waste Discharge Requirements, and effective wastewater pretreatment programs are in place to regulate most industrial sources. Some industrial practices and mineral extraction operations are regulated by Regional Water Boards under other programs.

Comment 16: Section 3.3.1, page 52, Disinfection and Disinfection Byproducts.

NDMA is a regulated constituent as part of the California Toxics Rule which is used in the development of effluent limitations for NPDES permits to protect water quality. The section should clarify whether a water quality impairment exists and if so, the basis for the concern should be included. NDMA should not be solely attributed to POTWs as a source of discharge, since they may originate from other sources such as industrial discharge. Regional San requests the following revisions:

The nitrosamine NDMA is currently unregulated in drinking water, but is regulated as part of the California Toxics Rule and State Implementation Plan for dischargers. NDMA ~~and~~ has been found to result from ~~water~~ chlorination ~~and can be present in~~ treatment of drinking water, and ~~also in~~ may be discharged from treated wastewater and other sources. In this regard, the production of NDMA can be considered a disinfection byproduct. At high enough levels, it can be of concern for drinking water and for ~~wastewater that is destined for use in a~~ recycled water projects involving the augmentation of drinking water ~~supplies~~ sources. There are a limited number of groundwater basins impaired by NDMA at these levels of concern, and regulations for dischargers sufficiently control NDMA discharges.

Comment 17: Section 3.5, page 56, Conclusions and Recommendations.

This section addresses the costs and economic burden to small water systems. However, there are significant costs and economic burdens that are not mentioned. For instance, water quality monitoring remains costly for wastewater systems and continues to increase with the identification of new constituents of concern that can require specialized analytical techniques that do not always have EPA approved methods (40 CFR Part 136). Monitoring, water supply use impairment, and management feasibility assessments should be performed in coordination with all watershed stakeholders to cost-effectively ensure water quality protection. Regional San requests the following revisions:

In the past two decades, many new contaminants have been identified and the majority of which have been effectively regulated or are in the process of being regulated. In addition, MCLs for some regulated contaminants and disinfection byproducts have been made more stringent. CECs are the next group of contaminants that may require consideration for regulatory action although, because of their low concentrations in drinking water sources, it is unclear whether or not they pose a health risk. Water quality monitoring for the myriad of regulated contaminants has become costly, which has resulted in an economic burden on many small water systems, POTWs, and other regulated municipal agencies. Better tools are necessary to evaluate beneficial use protection and cost-effective management solutions that include all watershed stakeholders.

Comment 18: Section 4.1.1, page 59-60, Microbiological.

Cryptosporidium is not a new water quality threat and Regional San requests the following revisions:

Over the last two decades, a greater emphasis has been placed on improving treatment of surface waters to provide greater assurance that bacterial, parasitic, and viral pathogens are effectively removed and to address ~~new~~ microbiological threats, such as ~~specifically~~ Cryptosporidium.

Comment 19: Section 4.2.3, page 68-72, Inorganic Chemicals.

It is not clear what is intended by "individual sewage disposal practices". As stated, the term seems to refer to septic and leach field systems. Regional San recommends the following revisions:

The second most significant groundwater quality issue affecting PWS serving less than 10,000 service connections is nitrates. Nitrates have historically been a major groundwater contaminant. The use of nitrogen fertilizers and large dairy operations and cattle feeding facilities and to a lesser extent individual non-municipal sewage disposal practices (i.e., failing septic systems and on-site disposal of untreated waste) have been the principal sources of the contamination.

Thank you for the opportunity to provide comments to the Draft Safe Drinking Water Plan for California. If you have questions about these comments, please contact me at (916) 876-6092 or MitchellT@sacsewer.com or Lysa Voight at (916) 876-6038 or VoightL@sacsewer.com.

Sincerely,

Terrie Mitchell
Manager, Legislative and Regulatory Affairs