FACT SHEET

Cryptosporidium and Giardia Recommendations

Overview

Despite a lack of evidence of an actual public health problem, the California Department of Public Health (CDPH) recently recommended that SRCSD be required to make substantial and expensive upgrades to its wastewater treatment to address *"possible"* risks of human exposure to *Giardia* and *Cryptosporidium* in the Sacramento River downstream of SRCSD's treated wastewater discharge point. Installation of microfiltration and UV disinfection required to remove these pathogens – at a cost of approximately **$1.3 billion** – would need to be borne by the Sacramento region. *(These costs would not address additional possible future advanced treatment requirements, i.e. ammonia removal.)*

The CDPH recommendation is based on a risk standard that far exceeds all Federal and State water quality standards for such pathogens, including USEPA national criteria to protect swimmers. In fact, this proposed standard - known as "1-in-10,000 risk level" **represents the same standard as is applied to "drinking water" (i.e. *treated tap water*).** If followed by the Regional Board, this standard would set a precedent for new restrictive limits that far exceeds the levels used to protect beaches and swimming pools.

Background

In May 2009 the California Regional Water Quality Control Board requested the California Department of Public Health to conduct an assessment of SRCSD's treated wastewater discharge to the Sacramento River immediately downstream of the Freeport Bridge to ensure that its renewed permit is adequately protective of certain beneficial uses of the river.

The Water Board requested guidance on appropriate disinfection requirements for the removal of pathogens in the renewed NPDES permit for human health protection. In essence, this analysis sought to determine if there would be a health risk to those who recreate in the Sacramento River who *might* be exposed to *Giardia* and *Cryptosporidium*.

As part of this analysis, SRCSD engaged the analytical services of Dr. Charles Gerba of the University of Arizona to prepare the study. Dr. Gerba is a professor of environmental microbiology in the Department of Soil, Water and Environmental Science; and Division of Epidemiology and Biostatistics at the University of Arizona. He has been involved in the study of waterborne disease and risk assessment for more than 30 years and published more than 500 articles dealing with the subject. He has served on the USEPA's Science Advisory Board.

CDPH Recommendation and Dr. Gerba's Findings

CDPH recommended to the Water Board that SRCSD be required to provide additional treatment sufficient to reduce the Acceptable Risk Level (ARL) posed by possible exposure to its discharge to

as close to **1 in 10,000** as can be achieved by a cost-effective combination of using filtration and/or a disinfection process that effectively inactivates *Giardia* cysts and *Cryptosporidium*.

Contrary to the CDPH recommendation, Dr. Gerba has noted that nowhere in the nation is a similar standard being required for recreational waters. Additionally, Dr. Gerba notes that a 1-in-10,000 risk level would not be achievable in most surface waters in the nation.

Dr. Gerba's assessment indicated that the risk to swimmers and other recreators (boaters, jet-skiers, water skiers) in the Sacramento River below the District's discharge does not represent a significant health risk and is well below established USEPA national criteria. Dr. Gerba also found that the risk to swimmers upstream from the District's discharge would not meet the CDPH's proposed new risk levels, which means that the installation of new advanced filtration and disinfection facilities by SRCSD would not produce a meaningful risk benefit in the river.

Furthermore, Dr. Gerba indicates that the risk from swimming in a typical public swimming pool presents a far greater risk of infection from *Cryptosporidium* and *Giardia* than swimming in river water. In fact 70% of the outbreaks are attributed to swimming in public swimming pools.

Implications to the Sacramento Region

To meet the newly proposed CDPH 1-in-10,000 risk standard, SRCSD would be required to construct significant new infrastructure at the Sacramento Regional Wastewater Treatment Plant. Those additional processes would include microfiltration and UV disinfection, the costs for which are estimated at **$1.3 billion.** When spread across SRCSD's customers, the impact to a typical single family household would be **an <u>additional</u> $20 per month over their current monthly sewer bill** – increasing a typical customer's sewer service charge from about **$480 to about $720 <u>per year</u>. These significant cost increases will not produce a meaningful health protection benefit in the Sacramento River.**

Next Steps

SRCSD will provide additional follow-up information to the California Regional Water Quality Control Board regarding its concerns about the CDPH recommendation, along with scientific, technical and cost implications, so that the Regional Board can fully evaluate the recommended standard and its potential benefits and impacts to the community. The Regional Board will then decide whether to adopt this standard in SRCSD's upcoming permit renewal.

Frequently Asked Questions

Q: What are *Giardia* and *Cryptosporidium*?

A: *Giardia lamblia* and *Cryptosporidium parvum* are microscopic parasites that can be found in water. They are both gastrointestinal organisms, meaning they are acquired by ingesting (drinking) water with parasites present. *Giardia* is often found in human, beaver, muskrat, and dog feces. Cattle feces appear to be a primary source of *Cryptosporidium*, although these parasites have also been found in humans and other animals. "*Giardiasis*" is a flu-like illness

with symptoms involving diarrhea, nausea, abdominal cramps, weight loss and sometimes dehydration. "*Cryptosporidiosis*" can have similar symptoms and is particularly problematic for individuals with compromised immune systems.

Giardia is usually cleared from most healthy people without medical treatment within one month. *Cryptosporidium* will also usually disappear from healthy people within one month without medical treatment.

Q: Are standards currently in place for the Sacramento River for pathogens?

A: There is already a legally adopted water quality standard for pathogens in the Sacramento River. This standard was approved by the Regional and State Water Boards and USEPA for protection of the recreational (swimming) use of the river. Furthermore, EPA has recommended acceptable risks of 19 in 1,000 (190 in 10,000) for marine waters and 8 in 1,000 (80 in 10,000) for freshwaters.

SRCSD's permit has limits to control pathogens that have been determined adequate by CDPH for decades, and the District meets those limits through the operation of its disinfection system.

Q: Does the Sacramento River currently meet the recent CDPH risk level recommendation of 1 in 10,000?

A: No. Even without SRCSD's discharge, the Sacramento River does not meet the DPH-proposed risk level.

Q: Why doesn't the Sacramento River currently meet this standard?

A: The risk standard proposed by CDPH is so low that few public swimming pools could attain this standard. Dr. Gerba has questioned whether any surface waters in the country could meet this risk standard.

Pathogens detected in the Sacramento River come from a variety of sources including both "point" and "nonpoint" sources.

- **Nonpoint sources:** The EPA defines nonpoint sources as including urban, agricultural, or forestry-related runoff. Nonpoint source pollution occurs when rainfall, snowmelt, or irrigation water runs over land or through the ground, and picks up pollutants and deposits them into lakes, rivers and groundwater. It can include fertilizers, sediment, pesticides, pathogens from animal waste, oil, grease, faulty septic systems, to name a few examples.

- **Point sources:** The EPA defines point sources as any discernible or discrete conveyance or source, not including agricultural storm water discharges and return flows from

irrigated agriculture. Point sources are generally considered more controllable than nonpoint sources.

CDPH claims that SRCSD's discharge appears to be contributing 30% of the pathogens detected in the Sacramento River immediately below its discharge point. Using that estimation, approximately **70%** of the remaining detected pathogens come from other sources, including nonpoint sources.

Q: Have there been incidents or outbreaks of "Giardiasis" or "Cryptosporidiosis" in the Sacramento region from swimming in the Sacramento River?

A: SRCSD is not aware of any data indicating any public health issues or concerns from Giardiasis or Cryptosporidiosis related to swimming or recreating in the Sacramento River.