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Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100, Sacramento, CA 95812-2000

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Comments – Proposed Revised SWA Regulations

December 15, 2017

Dear Ms. Jeanine Townsend,

IDEXX commends the State Water Resources Control Board (State Board) on developing the regulations for Surface Water Augmentation Using Recycled Water.

At this time, IDEXX would like to request the State Board consider the following comments:

1. Suggested changes in sections: §60320.380 Pathogenic Microorganism Control & §64668.30 SWSAP Augmented Reservoir Requirements
 - a. Proposed new language:

Note: Suggested additional text is indicated by a single underline (single underline).

§60320.380. a (1) For a SWSAP PWS implementing the requirements of section 64668.30(c)(1) of Chapter 17, the treatment train shall reliably achieve at least 6-log₁₀ Legionella pneumophila, 8-log₁₀ enteric virus reduction, 7-log₁₀ *Giardia* cyst reduction, and 8-log₁₀ *Cryptosporidium* oocyst reduction, consisting of at least two separate treatment processes for each pathogen (i.e., Legionella pneumophila, enteric virus, *Giardia* cyst, or *Cryptosporidium* oocyst). A separate treatment process may be credited with no more than 6-log₁₀ reduction, with at least two processes each being credited with no less than 1.0-log₁₀ reduction. A single treatment process may receive log₁₀ reduction credits for one or more pathogens.

§60320.380. a (2) For a SWSAP PWS implementing the requirements of section 64668.30(c)(2) of Chapter 17, the treatment train shall reliably achieve at least 6-log₁₀ Legionella pneumophila, 9-log₁₀ enteric virus reduction, 8-log₁₀ *Giardia* cyst reduction, and 9-log₁₀ *Cryptosporidium* oocyst reduction, consisting of at least three separate treatment processes for each pathogen (i.e., Legionella pneumophila, enteric virus, *Giardia* cyst, or *Cryptosporidium* oocyst). A separate treatment process may be credited with no more than 6-log₁₀ reduction, with at least three processes each being credited with no less than 1.0-log₁₀ reduction. A single treatment process may receive log₁₀ reduction credits for one or more pathogens.

§60320.380. a (3) The State Board may increase the minimum Legionella pneumophila, enteric virus, *Giardia* cyst, and *Cryptosporidium* oocyst log₁₀ reductions required in paragraphs (1) and (2) as a result of a SWSAP PWS

relying on additional treatment to obtain State Board approval of an alternative minimum theoretical retention time pursuant section 64668.30(b) of Chapter 17.

§60320.380. a.3.d (1) pursuant to the pathogen reduction requirements in subsection (a)(1), the effectiveness of the treatment train to reduce Legionella pneumophila is less than 6-logs₁₀, enteric virus reduction is less than 6-logs₁₀, Giardia cysts reduction is less than 5-logs₁₀, or Cryptosporidium oocysts reduction is less than 6-logs₁₀,

§60320.380. a.3.d (2) pursuant to the pathogen reduction requirements in subsection (a)(2), the effectiveness of the treatment train to reduce Legionella pneumophila is less than 6-logs₁₀, enteric virus reduction is less than 7-logs₁₀, Giardia cysts reduction is less than 6-logs₁₀, or Cryptosporidium oocysts reduction is less than 7-logs₁₀, or

§60320.380. a.3.d (3) effectiveness of the treatment train to reduce Legionella pneumophila, enteric virus, Giardia cysts, or Cryptosporidium oocysts is less than a log₁₀ reduction value derived from deducting 2-logs₁₀ from each of the minimum Legionella pneumophila, enteric virus, Giardia cyst, and Cryptosporidium oocyst log₁₀ reductions required pursuant to subsection (a)(3).

§64668.30. b.2. (D) A description of total proposed treatment and total log₁₀ reduction for Legionella pneumophila, enteric virus, Giardia cysts, and Cryptosporidium oocysts. For proposed alternative minimum theoretical retention times less than 120 days, no less than one log₁₀ reduction of such pathogens beyond that otherwise required pursuant to this Article and Article 5.3, Chapter 3, shall be provided

§64668.30. c. (2) ten percent, by volume, of recycled municipal wastewater that was delivered to the surface water reservoir during any 24-hour period, with the recycled municipal wastewater delivered by the SWSAP WRA having been subjected to additional treatment producing no less than a 1-log₁₀ reduction of Legionella pneumophila, enteric virus, Giardia cysts, and Cryptosporidium oocysts, as noted pursuant to section 60320.308(a)(2). With regard to the additional treatment:

2. Suggested change in section §60320.326 (b) Augmented Reservoir Monitoring

a. Proposed new language:

Note: Suggested additional text is indicated by a single underline (single underline).

§60320.326 (b) Prior to augmentation of a surface water reservoir using a SWSAP, each month, the SWSAP WRA shall collect samples for no less than 24 consecutive months, from the monitoring locations established pursuant to subsection (a). The samples shall be analyzed for the contaminants in tables 64449-A and B of Chapter 15, total organic carbon (TOC), total nitrogen, *E. coli*, total coliform bacteria, Legionella pneumophila, temperature, dissolved oxygen, chlorophyll a, total and dissolved phosphorus, and other State Board-specified chemicals and contaminants based on a review of the SWSAP WRA's engineering report and the results of the assessment performed pursuant to section 60320.306(b)(1).

3. Rationale for suggested changes:

Legionella occurs naturally in water under certain conditions and has been identified as occurring within recycled water systems [1]. *Legionella pneumophila* is the bacteria linked to most clinical cases of Legionnaires' disease reported from US disease outbreaks 2009-2012 [2]. Within the State Board's proposed regulations, Section 60320.308 Pathogenic Control & 64668.30 SWSAP Augmented Reservoir Requirements, both include treatment and monitoring of Giardia and Cryptosporidium, which the US EPA Surface Water Treatment rule includes regulations to protect against these pathogens, but also includes Legionella [3]. Provisions on treatment options for Legionella, in premise plumbing systems and recycled water, have been researched and identified by effectiveness in Legionella control [1,4].

With Legionella being found in water sources that are both natural and man-made, if these water sources contain other organisms and/or biofilms that could help the bacteria's survival, Legionella can be found in drinking water, even after water supplies have been centrally treated [5, 6, 7]. Although there have yet been any reported reuse Legionella outbreaks, the State Board may benefit from creating a regulation around proactively preventing any future outbreaks, by using the time available now rather than being impacted and pushed for regulations from an outbreak occurrence.

4. References:

1. Jjemba P.K., Bukhari Z., LeChevallier M.W. Examination of Microbiological Methods for Use in Reclaimed Waters: Comprehensive Report. WateReuse Foundation; Alexandria, VA, USA: 2013.
2. CDC. Surveillance for waterborne disease outbreaks associated with drinking water and other nonrecreational water—United States, 2009–2010. MMWR Morb Mortal Wkly Rep. 2013;62(35):714–720.
3. US Environmental Protection Agency, 40 CFR Part 141. Drinking water; National primary drinking water regulations; 78 FR 10347 & 54 FR 27527; 1989
4. US Environmental Protection Agency, Technologies for Legionella Control in Premise Plumbing Systems: Scientific Literature Review. Office of Water EPA 810-R-16-001: 2016
5. Safe Drinking Water Foundation. Legionella Fact Sheet. www.safewater.org/fact-sheets-1/2017/1/23/legionella
6. Cotruvo, J.A. Facilitating supplemental disinfection for *Legionella* control in plumbing systems, Journal of the American Water Works Association, Vol. 106, No. 8: 2014
7. Hubbs, Steve. "Addressing Legionella: Public Health Enemy #1 in US Water Systems." Water Quality and Health. Web.29 Aug. 2014

IDEXX strongly encourages the State Board to consider these suggested edits as an additional way to strengthen the regulations for Surface Water Augmentation Using Recycled Water. We appreciate the opportunity to provide these comments and look forward to the finalization of this Rule.

Respectfully jointly submitted,



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