

**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

IN THE MATTER OF: )  
)  
WATER QUALITY STANDARDS AND ) **R08-9**  
EFFLUENT LIMITATIONS FOR THE ) **(Rulemaking - Water)**  
CHICAGO AREA WATERWAY SYSTEM )  
AND THE LOWER DES PLAINES )  
RIVER: PROPOSED AMENDMENTS TO )  
35 Ill. Adm. Code Parts 301, 302, 303 and )  
304 )

**METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER  
CHICAGO'S PRE-FILED QUESTIONS TO PETER ORRIS**

1. On page 1 of your testimony, the last sentence of paragraph 3 states: "*No single epidemiological study – no matter how well designed and executed, and no matter what the ultimate result – is sufficient basis to refuse to address waterborne pathogens in the CAWS.*"
  - A. What is the appropriate approach for consideration of epidemiological studies in determining how to address waterborne pathogens in a waterbody?
  - B. Would you recommend that environmental regulators make decisions without the benefit of epidemiological studies?
  - C. In your opinion, could an epidemiological study indicating that waterborne pathogens do not pose a significant risk support a finding that further action to address the presence of waterborne pathogens is not necessary?
  - D. Please provide your thoughts on the sufficiency of the basis for the recreational water quality regulations for traditional fecal indicators developed by EPA in 1986, which are based on a single epidemiological study.
  - E. Are you aware that on August 8, 2008, NRDC signed a settlement agreement concerning the BEACH Act litigation that specifically requires EPA to conduct appropriate epidemiological studies to provide data necessary to support water quality criteria for recreational activities?
  - F. Do you disagree with the outcome of this agreement, and if not, does it alter your opinion of the role that the CHEERS study should play in establishing future water quality requirements for the CAWS?
2. Do you know of any study published in the peer-reviewed literature that estimated how much water people swallow during various recreational activities, such as fishing, boating and rowing?

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3. On page 2 of your testimony, paragraphs 1-2 state: *“This precautionary rationale suggests, for instance, that a community should not hesitate to install a traffic light on a street corner because an epidemiological study indicated that only one child in the neighborhood was likely to die at the corner each decade if everyone obeyed the speed limit. This reality is reflected in the proposed regulations of the IEPA, as well as in current practice in Illinois and throughout the nation.”*
- A. By use of this analogy, would you recommend that if a Department of Public Works had information that suggested a child might die at every intersection unless a traffic light was installed, the decision should be to install traffic lights at every intersection?
  - B. If so, how is a Department of Public Works or a municipality to decide how much intervention is needed?
  - C. Should it also lower the speed limit to 5mph everywhere or ban cars altogether in an effort to protect more children?
  - D. Would an engineering study of traffic conditions, pedestrian characteristics, population density of children in different areas, and physical characteristics at a particular location be relevant and useful to determining whether a traffic light should be installed at a particular location?
  - E. If we don't trust research because all studies have limitations, how should the community decide how many stop signs per block would be excessive?
  - F. Would you recommend that if the State believes even one child could become ill due to exposure to the CAWS, we are obligated to make the waterways as clean as possible to protect that child?
  - G. If the possibility exists for children to drown in the CAWS should we prohibit them from coming into contact with it?
  - H. Shouldn't the precautionary public policy for sensitive populations here include restricting opportunities for exposure, as is done for populations that might be particularly sensitive to other discretionary or voluntary activities?
  - I. Are you aware of the energy requirements necessary to implement disinfection a proposed in this rulemaking?
  - J. Unlike recreation in the CAWS, which is voluntary, everyone in the Chicago area must breathe air. If disinfection of WRP effluents will require significant power generation resulting in increased air emissions that would adversely affect air quality, how should the precautionary principle be applied to protect the breathing public?

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4. On page 3 of your testimony, line 5 of paragraph 2 states that “sensitive populations are more likely to contract serious illness from contact with sewage-contaminated water and any resulting infection is likely to be more severe and dangerous than it would be for a healthy adult.”
- A. Is this the basis for your opinion that the “Precautionary” policy is appropriate?
  - B. Are you aware that in many of the waterborne disease outbreaks most of the outbreaks are associated with “treated water” (swimming pools, spas, wading pools, interactive fountains, etc.) (CDC<sup>1</sup>, 2006, p. 6)?
  - C. Would you agree that even if the treatment technology is adequate, there is a chance a person, particularly one in these sensitive populations, could become ill?
  - D. In the greater Chicago area, do you think more people swim or are at risk for ingesting water in public and private swimming pools (rather than the CAWS)?
  - E. Are you aware that “employees ill with gastroenteritis at a California water park continued working and swimming in the pools, resulting in a Cryptosporidium outbreak involving 336 persons” in August 2004 (CDC, 2006, p. 8)?
  - F. Should all water parks be closed to protect sensitive populations that might use them?
  - G. Are you aware the CDC has identified that “[F]or treated water venues...no federal regulatory agency or national guidelines for standards of operation, disinfection, or filtration exist” (CDC, 2006, p. 2)?
  - H. Should the Illinois Department of Public Health (which has regulations associated with bathing beaches) start requiring that all public swimming pools upgrade to microfiltration and ultra-violet disinfection?
  - I. Could this protect more people in the greater Chicago area, including those in sensitive populations?
  - J. Are you aware that the Wisconsin Division of Health and the Wisconsin Department of Natural Resources reported that the Cryptosporidium outbreak in Milwaukee was not associated with the treated effluent from the Milwaukee Metropolitan Sewage District, but was a result of uncommonly heavy rains on frozen and ice-covered ground (particularly where manure had been spread), barnyard runoff, raw sewage overflows, slaughterhouse effluent, removal of a Milwaukee River dam, and/or changes in filtration practices at the drinking water plants?

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<sup>1</sup> Centers for Disease Control and Prevention (CDC) (2006). Surveillance for Waterborne Diseases and Outbreaks Associated with Recreational Water - United States, 2003-2004 and Surveillance for Waterborne Diseases and Outbreaks Associated with Drinking Water and Water Not Intended for Drinking - United States, 2003-2004. December 22, 2006. MMWR 2006:55 (No. SS-12).

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5. While you have indicated in your testimony the risks of serious illness from contact with sewage-contaminated water, have you compared the difference in health risks between treated secondary effluents as opposed to raw or partially treated sewage?
6. Are you aware that CDC has reported chlorine-resistant cryptosporidium is on the rise and is one of the reasons for the high rates of waterborne disease outbreaks in treated water venues (vs. untreated)?
7. On page 4 of your testimony, line 8 of paragraph 2 discusses the “high” levels of fecal bacteria that the District has measured in the CAWS. You also state that “*the high levels of indicator bacteria found in the CAWS are very likely correlated with the presence of waterborne pathogens that threaten human health.*”
  - A. What do you consider to be “high” levels of indicator bacteria?
  - B. What is the basis for your statement that these high levels are very likely correlated with the presence of waterborne pathogens?
  - C. Should primary contact recreational waters (like treated water venues) be more highly treated than those that are used infrequently and for recreation that results in minimal water contact?
8. Do you agree with the conclusion in the UAA (and within the proposed standards) that the waterways will not be safe for incidental contact recreation during and for some time following wet weather discharges (e.g., combined sewer overflows and runoff)?
9. On page 5 of your testimony, lines 4-7 of paragraph 1 state: “*Even assuming the study [Epidemiological Study] does not identify an increased rate of health problems amongst the subjects, such a result would in no way provide a sufficient basis to conclude that disinfection is unnecessary, because it would not fully reflect the potential danger of unintended ingestions and significant exposures to especially vulnerable individuals.*” What evidence do you have to state that disinfection is necessary when the published research (Blatchley et. al., 2007)<sup>2</sup> strongly suggests that conventional disinfection processes are not effective for control of the risks of disease transmission, particularly those associated with viral pathogen?
10. On page 5 of your testimony, lines 4-7 of paragraph 2 state: “*Epidemiological studies are by nature blunt instruments..... They require repetition.....*” If the study showed an increased risk of illness among CAWS recreators compared to the comparison groups, does that mean we should not intervene until the results are replicated by another study?
11. Are you aware that the CHEERS study research plan has been evaluated by a panel of recognized leaders in the field of water microbiology and health (including US Centers for Disease Control and Prevention (CDC), EPA and universities), and the panel determined that the study “has been designed to provide information that is valuable in

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<sup>2</sup> Blatchely, et al. (2007). *Effects of Wastewater Disinfection on Waterborne Bacteria and Viruses*. *Water Environment Research*, Volume 79, Number 1, pp 81-92.

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the area of health risks associated with secondary contact recreation, and address potential deficits in the current knowledge of the health risks associated with limited contact water recreation and the measures required to protect the public?"

12. On page 5 of your testimony, paragraph 4 states: "*The epi study won't enroll enough people in high risk groups (small kids, people with compromised immunity, people who capsize, etc.)*"
  - A. Are you aware that survey research - such as surveys of how the public feels about the economy or the presidential race - generally samples less than 1/100 of 1% of the population?
  - B. If the CHEERS research study enrolls 5 or 10% of CAWS users, isn't that representative of the population of interest?
  - C. If the percent of users enrolled in the research is very high compared to most research studies, doesn't that make the results to be an unusually good reflection of the risks of the actual population of CAWS recreators?
13. On page 6 of your testimony, paragraph 2 states: "*However, I believe it would be a serious mistake to place too much significance on a possible negative result of the study, and an even more serious mistake to delay disinfection of the CAWS pending the results of the study.*" If considerable weight has been given to positive results of a study such that it becomes the basis for water-quality criteria throughout this country, why would it be a serious mistake to place any significance on any negative results produced by the CHEERS study?
14. On page 6 of your testimony, paragraph 2 states: "*Every year in which disinfection does not occur puts users of the CAWS at risk of infection.....*"
  - A. What scientific evidence do you have to support this statement?
  - B. Has a local, state, or federal public health entity demonstrated this risk for illness among people who enjoy recreational use of the CAWS?
  - C. What is the current health risk to normal and sensitive CAWS recreating population due to bacteria levels in the CAWS?
  - D. Do you believe that, if disinfection of wastewater effluents is practiced, there will be no risk to users of the CAWS?
15. Are you aware that if the MWRD were to disinfect, it would take years before the treatment plants would be built?
16. In the interim, would you recommend banning all recreation on the CAWS?

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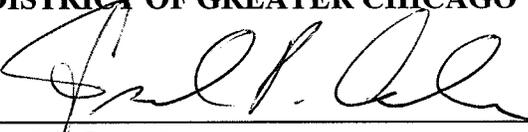
17. Even if the wastewater treatment plant effluent was disinfected, would you still be concerned about recreational exposure to the CAWS due to pathogen contributions from stormwater runoff and combined sewer overflows?
18. Are there health risks associated with disinfection by-products?
19. How should these risks be balanced with health risks associated with incidental contact with waterborne pathogens?

Dated: August 25, 2008

Respectfully submitted,

**METROPOLITAN WATER RECLAMATION  
DISTRICT OF GREATER CHICAGO**

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