

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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

NOTICE OF FILING

To:

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Persons on the attached service list

Please take notice that today I filed with the office of the Clerk of the Pollution Control Board **Prefiled Questions of the Natural Resources Defense Council to Ernest R. Blatchley III**, a copy of which is hereby served on you.



\_\_\_\_\_  
Ann Alexander

Dated: August 22, 2008

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**CERTIFICATE OF SERVICE**

I, Ann Alexander, the undersigned attorney, hereby certify that I have served the attached **Prefiled Questions of the Natural Resources Defense Council to Ernest R. Blatchley III** on all parties of record (Service List attached), by depositing said documents in the United States Mail, postage prepaid, from 227 W. Monroe, Chicago, IL 60606, before the hour of 5:00 p.m., on this 22nd Day of August, 2008.

*Ann Alexander*

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WATER QUALITY STANDARDS AND )  
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**PREFILED QUESTIONS OF NATURAL RESOURCES  
DEFENSE COUNCIL TO ERNEST R. BLATCHLEY III**

The Natural Resources Defense Council hereby files questions to Ernest R. Blatchley III:

1. Do you have formal training in microbiology?
2. Regarding the statement on page 3 of your summary testimony that “for some common pathogens, analytical methods for measurement of their concentration do not exist or are difficult to perform” – is this a reason indicator bacteria are commonly used to estimate pathogen concentrations? Would you agree that indicator bacteria can be a good indicator of the presence of at least some types of pathogens?
3. Is it possible to apply levels of disinfection that kill both the indicators *and* some or most microbial pathogens?
4. What is the alternative to the use of coliform bacteria as an indicator of disinfection effectiveness?
5. Regarding the statement in your summary testimony at 3 that “use of coliform as an indicator organism provides potentially misleading information regarding the performance of disinfection systems” -- do you mean by that that it can provide false reassurance of safety?
6. Regarding the statement in your summary of conclusions, conclusion no. 1, that “coliform bacteria are poor indicators of the effectiveness of disinfection systems. Relative to most microbial pathogens, coliform bacteria are sensitive to disinfectant exposure, and as a result conditions that accomplish effective inactivation of coliform bacteria will not necessarily translate to effective control of microbial pathogens” -- Do you mean that the level of disinfection that yields a low concentration of viable coliform bacteria will in no instance result in any reduction in microbial pathogens?

7. Regarding your statement your summary of conclusions, conclusion no. 2, that disinfection systems that have demonstrated “reliable, effective control of microbial pathogens” call for roughly an order of magnitude greater disinfectant exposure than would be required to comply with the proposed 400 cfu/100 ml standard” –
  - a. Is your concern that the standard proposed by IEPA is insufficient to achieve the highest level of bacteria inactivation?
  - b. If MWRD were to install a UV disinfection system to meet the 400 cfu/100 ml standard, what would they have to do to upgrade it to meet the “reliable, effective” level of control demonstrated in other systems?
  
8. Regarding your further statement in conclusion no. 2 that “The response of the bacterial community to the post-disinfection environment will be influenced by bacterial repair, recovery, and re-growth; collectively, these processes may yield diminished water quality relative to a situation in which disinfection is not practiced” –
  - a. Do all pathogenic bacteria exhibit the same response to chlorine disinfectant as fecal coliforms?
  - b. If you used a higher level of chlorine disinfection, would you expect there to be a change in the ability of the microorganisms to repair and regrow?
  - c. Do your findings in this study apply to viruses and protozoa, or just fecal coliform bacteria?
  - d. Regarding Table 3 in your study –
    - i. Were fecal coliform levels in the disinfected effluent at  $t = 144$  generally higher or lower than the levels prior to disinfection (i.e., prior to  $t = 0$ )?
    - ii. What did the change in fecal coliform concentration as a function of time from  $t=0$  through  $t=144$  hours look like?
  
9. Regarding your statement in your summary of conclusions, conclusion no. 3, that “in many developed countries, wastewater disinfection is not practiced, and it appears that the frequency of disease transmission associated with water contact is not substantially different that [sic] in the U.S., where wastewater disinfection is common” –
  - a. Can you cite specific countries and statistics to back up this statement?

- b. Do you have information regarding the popularity of various water recreation activities in these countries relative to the US?
10. In your summary of conclusions, conclusion no. 4, you state that “Irrespective of any measures that are used to control microbial inputs to the CAWS from municipal wastewater treatment facilities, inputs from other sources (e.g., CSOs and non-point sources) will remain.” Is this statement true with respect to wet weather conditions? Do you have any basis to believe it is true with respect to dry weather conditions?
11. Regarding your statement in the conclusion to the study you co-authored and published January, 2007 that “in situations where direct human contact is likely or when ingestion of indigenous microorganisms in a near-outfall area is likely, it appears that disinfection of municipal wastewater may yield some direct benefits” --
- a. Is this statement referring to “conventional disinfection” as you have defined it?
  - b. Do you have any reason to believe that people are not engaging in water recreation near the CAWS outfalls?
  - c. Do you have any reason to believe that these recreators do not occasionally ingest water in the course of their activities?
12. Regarding the further statement in the conclusion of your study that “In applying any disinfectant, it is critical to strike a balance between minimizing risks associated with microbial pathogens and those associated with disinfection byproducts and related (chemical) toxicological issues” -- does UV disinfection create a significant level of disinfection byproducts?
13. How prevalent would you say disinfection is in wastewater treatment?
- a. What if any major municipalities in the nation besides Chicago are you aware of that are not either currently disinfecting their effluent, or under orders to begin doing so?
  - b. Would you think it fair to say that most Illinois communities other than Chicago disinfect their effluent for at least part of the year?
  - c. What method of disinfection is most common?
  - d. What other methods are used?