

**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: ) Subdocket B  
PROPOSED AMENDMENTS TO 35 Ill. )  
Adm. Code Parts 301, 302, 303 and 304 )

**NOTICE OF FILING**

To: ALL COUNSEL OF RECORD  
(Service List Attached)

**PLEASE TAKE NOTICE** that on the 31<sup>st</sup> day of January, 2011, I electronically filed with the Office of the Clerk of the Illinois Pollution Control Board, the **Metropolitan Water Reclamation District of Greater Chicago's Responses to Comments on the Proposed Effluent Bacteria Standards.**

Dated: January 31, 2011.

**METROPOLITAN WATER RECLAMATION  
DISTRICT OF GREATER CHICAGO**

By: /s/ Fredric P. Andes  
One of Its Attorneys

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**PROOF OF SERVICE**

The undersigned attorney certifies, under penalties of perjury pursuant to 735 ILCS 5/1-109, that I caused a copy of the foregoing, **Notice of Filing** and **Metropolitan Water Reclamation District of Greater Chicago's Responses to Comments on the Proposed Effluent Bacteria Standards**, to be served via First Class Mail, postage prepaid, from One North Wacker Drive, Chicago, Illinois, on the 31<sup>st</sup> day of January, 2011, upon the attorneys of record on the attached Service List.

*/s/ David T. Ballard*

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**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

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WATER QUALITY STANDARDS AND ) R08-09  
EFFLUENT LIMITATIONS FOR THE ) (Rulemaking – Water)  
CHICAGO AREA WATERWAY SYSTEM )  
AND LOWER DES PLAINES RIVER ) Subdocket B  
PROPOSED AMENDMENTS TO 35 ILL. )  
ADM. CODE 301, 302, 303, AND 304 )

**METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER  
CHICAGO’S RESPONSES TO COMMENTS ON THE PROPOSED  
EFFLUENT BACTERIA STANDARDS**

The Metropolitan Water Reclamation District of Greater Chicago (the District), by its attorneys Barnes & Thornburg LLP, hereby submits these responses to comments on Proposed Rule 35 Ill. Admin. Code § 304.224, which would establish effluent bacteria standards for discharges to the Chicago Area Waterway System (“CAWS”) and Lower Des Plains River (“LDPR”) (the “Proposed Rule”).

The Illinois Environmental Protection Agency (“IEPA”), environmental groups including Natural Resources Defense Council, Environmental Law & Policy Center, Friends of the Chicago River, Openlands, Alliance for the Great Lakes, Prairie Rivers Network, and Sierra Club-Illinois Chapter (the “Environmental Groups”), the Southeast Environmental Task Force (“SETF”), and the Illinois Attorney General (collectively, the “Commenters”) filed final comments on the Proposed Rule on January 3, 2011. Those comments confuse the applicable standard for Board action on the Proposed Rule, and do nothing to justify disinfection of discharges from the District facilities on the CAWS. As a result, the Board should decline to adopt the Proposed Rule.

### STANDARD OF REVIEW

The Commenters would have the Board believe that unless disinfection is demonstrated to cause widespread social and economic impact in accordance with federal use attainability analysis (“UAA”) requirements, or unless the District proves that disinfection is unnecessary, the Proposed Rule should be adopted. This assertion mischaracterizes the nature of the Proposed Rule, misconstrues the federal Clean Water Act (“CWA”), and ignores applicable state law. The Proposed Rule is not a designated use that the District is seeking to have removed or an existing water quality criterion that the District is seeking to modify, so the federal UAA factor requiring a demonstration of social and economic impact is not relevant here. Nor is the Proposed Rule purported to be a water quality criterion, to which federal requirements might apply. Instead, the Proposed Rule contains new effluent bacteria standards designed to require disinfection of discharges to the CAWS pending promulgation of a bacterial water quality standard.<sup>1</sup> As a result, the Board here faces a question governed solely by state law.

In addition, because the Board is evaluating adoption of a new effluent standard where none currently exists, there can be no presumption that disinfection should be required unless the District proves it unnecessary. The Board should consider the Proposed Rule in light of statutory requirements applicable to promulgation of new regulations, and is authorized to adopt the Proposed Rule only if it is affirmatively demonstrated to be necessary to prevent pollution that would render the CAWS “harmful or detrimental or injurious to public health, safety or welfare,” and only after consideration of its economic reasonableness.<sup>2</sup>

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<sup>1</sup> IEPA Statement of Reasons at 100 (Oct. 26, 2007). IEPA proffered and sought to justify the Proposed Rule under the regulations governing adoption of effluent standards, rather than as a temporary narrative criterion, as suggested by some of the Commenters.

<sup>2</sup> 415 ILCS 5/13(a) (Board may adopt regulations, including effluent standards, to promote the purposes of the Illinois Environmental Protection Act (the “Act”)); 415 ILCS 5/11(b) (Purpose of Act to assure that no contaminants are discharged into waters of the State without being given the degree of treatment or control “necessary to prevent

## DISCUSSION

Nothing the Commenters have provided demonstrates that the Proposed Rule is necessary to prevent pollution that would be detrimental to public health, or that disinfection is economically reasonable in light of its possible benefits.<sup>3</sup> As a result, the standard for Board adoption is not satisfied, and the Board should decline to adopt the Proposed Rule.

IEPA initially proposed effluent bacteria standards as an interim measure, to protect the secondary contact uses proposed for the CAWS until a sound scientific basis was available to support a recreational based bacteria standard.<sup>4</sup> IEPA indicated that the District's epidemiological study and risk assessment would provide that basis.<sup>5</sup> After those studies were completed, within 24-30 months, IEPA envisioned replacing the Proposed Rule with a bacterial water quality standard.<sup>6</sup> More than three years later, those studies have now been completed, and with the results of both the Dry and Wet Weather Risk Assessment of Human Health Impacts of Disinfection vs. Non-Disinfection of the Chicago Area Waterways System (the "Risk Assessment") and the Chicago Health, Environmental Exposure, and Recreation Study ("CHEERS") now before the Board and IEPA, the District has proposed an appropriate water

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pollution"); 415 ILCS 5/3.545 ("Water pollution" includes "discharge of any contaminant into any waters of the State, as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety, or welfare..."); 415 ILCS 5/27(a) ("In promulgating regulations under this Act, the Board shall take into account...the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution.").

<sup>3</sup> Nor is disinfection otherwise required by the Illinois regulation governing protected waters, as asserted by some of the Commenters. The District addressed this issue directly at the Board's request. *See* District's Responses to Information Requests at October 19 and 20, 2010 Hearings, Item 4 (Jan. 3, 2011). As amply demonstrated throughout this rulemaking effort, the CAWS will at best support only non-contact and incidental contact recreation, whereas the protected waters provision is contained in the code section that applies specifically to general use waters. *See* IEPA Statement of Reasons, at 92 (indicating that Rule 304.121(a) is the "standard for dischargers to General Use waters").

<sup>4</sup> IEPA Statement of Reasons, at 43-45.

<sup>5</sup> *Id.* at 44.

<sup>6</sup> *Id.* at 44-45.

quality standard to protect the designated uses proposed for the CAWS.<sup>7</sup> As a result, there is no need for interim technology-based effluent bacteria standards.

In answering the heretofore unaddressed question of how best to protect public health during secondary contact recreational activities, and partially at IEPA's behest, the District implemented the very strategy recommended by U.S. EPA for development of other recreational water quality standards. The first step was to conduct a risk assessment; the second, an epidemiological study. This approach is entirely consistent with U.S. EPA's plan for development of recreational standards for primary contact under the Beaches Environmental Assessment and Coastal Health Act of 2000 (the "Beach Act").<sup>8</sup> The District's efforts have yielded exactly what IEPA has been waiting for—an assessment of health risks and a basis for establishing scientifically sound water quality criteria associated with secondary contact recreational activities.<sup>9</sup>

The Risk Assessment, CHEERS Report, and CHEERS Supplement, taken together, clearly demonstrate that the health risks from water recreation in the CAWS, which receives secondary treated undisinfected effluent, are no greater than the risks from the same activities on general use waters, which do not. In addition, the risk directly attributable to bacteria exposure in the CAWS is very low. There is no demonstrated relationship between bacteria and risk of illness in CAWS recreators. Moreover, to the extent there is any risk from bacteria, compliance with the Proposed Rule through disinfection would do little or nothing to reduce that risk.

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<sup>7</sup> District's Responses to Information Requests at October 19 and 20, 2010 Hearings (Jan. 3, 2011) (the "Responses to Information Requests"), Item 8, PC#565 at 182-183. Note that for ease of reference, the District will cite to the item number and exact page numbers in the electronically filed copy of its Response to Information Requests as "Item X, PC#565 at xx."

<sup>8</sup> Responses to Information Requests, Item 3, PC#565 at 63-74.

<sup>9</sup> See IEPA Statement of Reasons, at 44.

The Commenters have encouraged the Board to disregard these findings, apparently in large part because the results were not what other parties expected or hoped for. However, unexpected results do not make a study invalid. The data are what the data are; and nothing the Commenters have presented can diminish the scientific validity of those data. The District has indicated from the start of this rulemaking that it would abide by the CHEERS results, including the water quality criteria supported by those results. Now that the data are available to develop appropriate water quality criteria to support secondary recreation on the CAWS, the parties should not abandon sound science simply because they don't like how that science turned out.

In opposing the Proposed Rule, the District is not urging the Board to do nothing to protect public health during recreational activities on the CAWS. On the contrary, at the Board's request the District has submitted complete water quality standards to support the recreational uses proposed for the CAWS.<sup>10</sup> These include narrative criteria prohibiting levels of bacterial pathogen indicators that might result in impairment of those uses. In addition, specific requirements are included to help maintain compliance with those criteria and protect recreational uses. This approach is consistent with the sound science presented in the CHEERS Report and Supplement, and will ensure that recreators can continue to enjoy the benefits of recreating in and on the CAWS.

#### **I. Disinfection is not Necessary to Protect Public Health**

The Commenters have failed to justify adoption of the Proposed Rule in two important respects. First, secondary treated undisinfected discharges to the CAWS have not been demonstrated to be "harmful or detrimental or injurious...to public health," such that effluent

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<sup>10</sup> Responses to Information Requests, Item 8, PC#565 at 182-183.

standards are necessary to control those discharges. Second, imposing a disinfection requirement would do very little to reduce the already low risks that do exist for recreators on the CAWS.

**A. CAWS Recreators are not Subject to Increased Risks**

The Commenters would have the Board conclude that CAWS recreators must be at risk, because risks have been found elsewhere, on other types of waters to recreators participating in different types of activities with different levels of exposure than occur on the CAWS. For example, two of the four studies discussed by Dr. Yates and cited by the Environmental Groups were based on windsurfing and white water canoeing, which involve significantly more exposure than the incidental contact activities proposed for the CAWS.<sup>11</sup> The third study, based on canoeing, describes an elevated risk of schistosomiasis, which is not even a risk to CAWS recreators because it does not occur in Illinois.<sup>12</sup> The fourth study, based on 46 samples of cryptosporidium on fish and anglers' hands, is extremely limited and not representative of the various incidental contact activities that occur on the CAWS, and provided only an estimate of risk rather than observed illnesses, so is not an epidemiological study.<sup>13</sup>

The human health risks associated with primary contact activities in the studies relied upon by the Commenters in no way represent the risks associated with the non-contact and incidental contact recreational uses proposed for the CAWS. What is true for waters that must support the prolonged submersion and exposures expected from primary contact recreational activities cannot be presumed to be true for—or even relevant to—the CAWS. On the other

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<sup>11</sup> Comments of Environmental Groups on the Proposed Rules, Table 2, at 46-48 (Jan. 3, 2011) (De Wailly *et al.*, 1986; Fewtrell *et al.*, 1992).

<sup>12</sup> Comments of Environmental Groups on the Proposed Rules, Table 2, at 47 (Jan. 3, 2011) (Taylor *et al.*, 1995); May 5, 2009 Hearing (Testimony of Yates), at 47 (no knowledge of schistosomiasis occurring in Illinois); Sept. 23, 2008 (afternoon) Hearing, Testimony of Dorevitch, at 57-58 (schistosomiasis does not occur in Illinois).

<sup>13</sup> Comments of Environmental Groups on the Proposed Rules, Table 2, at 48 (Jan. 3, 2011) (Roberts *et al.*, 2007); Sept. 23, 2008 Hearing, Testimony of Dorevitch, at 59.

hand, the Risk Assessment and CHEERS studies provided by the District directly evaluated the human health risks from recreation on the CAWS, and from pathogen levels actually present in the CAWS. The Board should consider the risks to human health from the specific activities proposed for the CAWS in this rulemaking, rather than any risks that might exist at bathing beaches and other waters where swimming occurs.

Similarly, studies that are not specific to CAWS waters cannot accurately represent the magnitude of any risks to CAWS recreators. The CAWS encompasses a unique set of highly-managed, effluent-dominated waters. The Risk Assessment, CHEERS Report, and CHEERS Supplement provide the Board with a direct measurement of the risks associated with the specific types of activities that occur on these waters—the very information needed to “fill the void in scientific knowledge” that IEPA acknowledged when this rulemaking began,<sup>14</sup> which could not be addressed by relying on the studies relied on by the Commenters.

The Commenters object to the CHEERS comparison of risk levels in the CAWS to those in general use waters, asserting that those results are not relevant to whether disinfection is necessary on the CAWS. This position ignores the fact that the primary difference between CAWS and general use waters is the acceptance of secondary treated undisinfectated effluent from point sources. Because the recreational activities of the CHEERS participants in CAWS and general use waters are the same, it is entirely reasonable to compare rates of illness in the two settings regardless of the concentrations of *E. coli* or enterococci observed.

Importantly, both the CAWS and general use water groups were observed to have elevated rates of gastrointestinal illness compared to those in the unexposed group, although that

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<sup>14</sup> See IEPA Statement of Reasons, at 44.

risk for CAWS users was not associated with bacteria levels.<sup>15</sup> Therefore, CHEERS clearly had sufficient statistical power to identify differences in risk. There was no suggestion of an apparent difference between CAWS and general use waters users that failed to reach statistical significance. Indeed, the adjusted rates of illness were nearly identical: 12.5 per 1,000 uses in the CAWS group; and 13.4 per 1,000 uses in the general use waters group.<sup>16</sup>

Nothing contained in the CHEERS Report, however, supports the Commenters' contention that there are significant public health risks from recreation on the CAWS. The only increased risk for CAWS recreators identified by the CHEERS Report was an elevated incidence of eye symptoms in comparison to recreators on general use waters that do not receive secondary treated undisinfectated effluent.<sup>17</sup> This difference, however, was most likely due to lower rates of hand washing among CAWS recreators who ate or drank.<sup>18</sup> After accounting for the hand washing behavior of participants who ate and drank, "the higher rate of eye symptoms in the CAWS group was no longer apparent."<sup>19</sup> Regardless, eye symptoms reportedly were very minor in most cases, generally not requiring any medication, or requiring only use of over-the-counter medications.<sup>20</sup> Any remaining increased risk of such a minor health effect is not sufficient to demonstrate that disinfection is necessary on the CAWS.

Despite the direct data showing no increased risk to CAWS users from exposure to secondary treated undisinfectated effluent, the Commenters appear to presume that CAWS

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<sup>15</sup> Oct. 19, 2010 Hearing (Testimony of Dorevitch), at 148.

<sup>16</sup> CHEERS Report, at i-ii (Abstract), ix (FAQ), xxx-xxxii (Executive Summary); Pre-Filed Testimony of Granato, at 3-4 (Sept. 20, 2010); Pre-Filed Testimony of Dorevitch, at 6 (Sept. 20, 2010).

<sup>17</sup> CHEERS Report, at i (Abstract), ix (FAQ); Pre-Filed Testimony of Dorevitch, at 6 (Sept. 20, 2010).

<sup>18</sup> Oct. 19, 2010 Hearing, Testimony of Dorevitch, at 196 ("If I restrict that analysis only to the people who ate or drank, then taking into account handwashing makes the difference between the CAWS group and the general use group disappear.").

<sup>19</sup> *Id.* PC#565 at 56.

<sup>20</sup> CHEERS Report, at ix (FAQ); Pre-Filed Testimony of Granato, at 4 (Sept. 20, 2010); Pre-Filed Testimony of Dorevitch, at 6 (Sept. 20, 2010).

recreators must be at risk due to high bacteria levels on the CAWS. Regardless of those levels, the Commenters seem to have forgotten that it is not the bacteria themselves that pose a risk to recreators, but the underlying pathogens that bacteria may indicate. Bacteria levels, by themselves, do not demonstrate risk, which cannot be present without significant levels of the pathogens that can cause illness. For the CAWS, that is undisputedly not the case. Actual data from the CAWS demonstrate relatively low pathogen levels, which were associated with only minimal risks of gastrointestinal illness.<sup>21</sup> And direct measurements of risk to recreators on the CAWS demonstrate no relationship between bacteria levels and risk of illness.<sup>22</sup>

Moreover, levels of both bacterial indicators and pathogens likely would be further reduced if and when the District installs control technologies to address expected nutrient requirements. At the Board's request, the District provided a summary of available data concerning bacteria and pathogen removal with filtration technologies.<sup>23</sup> For example, the type of filtration necessary to achieve the most likely nutrient reduction scenarios would remove between 60 and 98 percent of fecal coliform from plant effluent, depending on design parameters.<sup>24</sup>

The Commenters allege that disinfection is necessary because the health risks that were identified in the CHEERS Report exceed U.S. EPA's 2004 benchmark risk levels. This argument, however, fails to recognize the critical difference between the risks evaluated by U.S. EPA in establishing its primary recreation benchmarks and the risks evaluated by CHEERS. U.S. EPA has established its benchmark of 8 to 14 illnesses per 1,000 uses attributable to

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<sup>21</sup> Risk Assessment, at xxxiv-xxxv and Table 1; CHEERS Report, at II-81 to II-82.

<sup>22</sup> CHEERS Supplement at ii, ES-18.

<sup>23</sup> See Responses to Information Requests, Item 7F, PC#565 at 174-180. .

<sup>24</sup> *Id.*

bacteria levels alone.<sup>25</sup> The CHEERS finding of 12.5 illnesses per 1,000 uses are attributable to secondary recreation generally—from all possible causes, including bacteria exposure.<sup>26</sup> When the risks associated with bacteria levels on the CAWS were isolated in the CHEERS Supplement, no relationship between bacteria levels and risk of illness existed.<sup>27</sup> As a result, the CHEERS findings do not demonstrate risks above the U.S. EPA benchmarks.

Even if some relationship between risks to CAWS recreators were found, U.S. EPA risk levels are not directly comparable to the CHEERS results. U.S. EPA studied swimming in marine and fresh waters, and established benchmark swimming risk levels for each.<sup>28</sup> As a result, measurement of risks from the incidental contact activities proposed for the CAWS could not be determined to be acceptable or unacceptable based on a level established for swimming.<sup>29</sup> This is amply demonstrated by the fact that the 2004 benchmark risk levels are different for marine and fresh waters. In fresh waters, EPA set the benchmark at 8 illnesses per 1,000 uses; in marine water, the benchmark was more than doubled, at 19 illnesses per 1,000 uses.<sup>30</sup> In 2006, U.S. EPA clarified that its benchmarks were not based on any determination that a certain number of illnesses for a particular group or activity was regulatorily “acceptable,” but instead reflect the agency’s use of the previously recommended criterion of 200 fecal coliforms per 100 mL.<sup>31</sup> As a result, the mere exceedance of a benchmark level would not demonstrate that disinfection is necessary on the CAWS. Detailed information concerning the U.S. EPA’s

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<sup>25</sup> See IEPA Statement of Reasons, at 44.

<sup>26</sup> CHEERS Supplement, at ES-6 to ES-9.

<sup>27</sup> CHEERS Supplement at ii, ES-18.

<sup>28</sup> See Responses to Information Requests, Item 12, PC#565 at 203.

<sup>29</sup> See, e.g., Oct. 19, 2010 Hearing (Testimony of Dorevitch), at 122.

<sup>30</sup> See Responses to Information Requests, Item 12, PC#565 at 203.

<sup>31</sup> *Id.*, citing EPA 2006. Water Quality Standards For Coastal Recreation Waters: Considerations for States as They Select Appropriate Risk Levels. Office of Water. EPA-823-F-06-012 (Aug. 2006).

flexibility on acceptable risk levels for primary contact recreation has been provided by the District.<sup>32</sup>

**B. The Risk Assessment and CHEERS Provide Valid Risk Data that Should be Considered by the Board**

The Commenters have raised numerous objections to use of the Risk Assessment and CHEERS study to support the Board's decision on the Proposed Rule. Those objections, however, are unfounded. The Risk Assessment was developed for the District by a team of nationally-recognized experts in risk assessment and bacterial human health effects, led by Geosyntec.<sup>33</sup> The only significant substantive criticisms concerning the Risk Assessment have come from U.S. EPA, which as not actually testified in these proceedings but has raised the same issues repeatedly, including commenting on the manner of data presentation, rather than the substance of the data themselves. The District has repeatedly responded to every concern, and has provided those responses to the Board.<sup>34</sup> Nothing raised by U.S. EPA diminishes the validity of the Risk Assessment results.

CHEERS is the first epidemiological study of the health risks of fishing, boating, rowing and padding in the CAWS.<sup>35</sup> In fact, CHEERS was also the first comprehensive epidemiological study of secondary contact recreation conducted anywhere in the country.<sup>36</sup> CHEERS used the

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<sup>32</sup> Responses to Information Requests, Item 12, PC#565 at 203-205.

<sup>33</sup> See Risk Assessment, at xiii; Pre-Filed Testimony of Tolson, at 1, Attachments 2-3 (Aug. 4, 2008); Pre-Filed Testimony of Gerba, at 1, Attachments 1-2 (Aug. 4, 2008); and Pre-Filed Testimony of Petropoulou, at 1, Attachments 2-3 (Aug. 4, 2008).

<sup>34</sup> District's Responses to the United States Environmental Protection Agency's Review of Geosyntec's Response to the United States Environmental Protection Agency's Comments on the Report Entitled "Dry and Wet Weather Risk Assessment of Human Health Impacts of Disinfection Versus No Disinfection of the Chicago Area Waterway System" (Jan. 3, 2011).

<sup>35</sup> CHEERS Report, at iv (Frequently Asked Questions about CHEERS ("FAQ")) (filed with the Board on August 31, 2010); Pre-Filed Testimony of Granato, at 2-3 (Sept. 20, 2010); Pre-Filed Testimony of Dorevitch, at 2 (Sept. 20, 2010).

<sup>36</sup> Pre-Filed Testimony of Dorevitch, at 2 (Aug. 4, 2008).

gold standard of observational epidemiological studies—the prospective cohort design—and followed the study format used for the U.S. EPA’s National Epidemiological and Environmental Assessment of Recreation (NEEAR) Water Study, which will be used to generate national microbial water quality criteria for primary contact recreational waters.<sup>37</sup> The study design was developed by a multi-disciplinary team of experienced researchers with backgrounds in infectious disease medicine, environmental medicine, epidemiology, biostatistics, industrial hygiene, and environmental science<sup>38</sup> A panel of recognized leaders in the fields of water microbiology and health—including two nationally-recognized experts from U.S. EPA and others from the U.S. Centers for Disease Control and Prevention and several universities—reviewed and endorsed the designs and protocols of the research, and monitored the quality of the data collected and its analysis and interpretation.<sup>39</sup>

Some of the Commenters suggest that CHEERS is not a valid study; the District will address those concerns in detail below. Others admit that it is a well-conducted study, but nevertheless urge the Board to disregard its results. They can’t have it both ways. As discussed above, the Board should not reject good science simply because the Commenters do not like the results of that science. CHEERS constitutes a valid, well-conducted study specific to the activities and waters that are the subject of the Proposed Rule.

Some Commenters suggest that the CHEERS Report be rejected because it yielded negative results. On the contrary, a negative scientific result does not imply that the study or the results should be considered bad science. The CHEERS Study and its results were extensively reviewed by a Water Environment Research Foundation (“WERF”) expert panel, which made no

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<sup>37</sup> *Id.* at 4-5; CHEERS Report, at i (Abstract), xxv (Executive Summary).

<sup>38</sup> Pre-Filed Testimony of Granato, at 3 (Sept. 20, 2010); Pre-Filed Testimony of Dorevitch, at 2 (Sept. 20, 2010).

<sup>39</sup> Pre-Filed Testimony of Granato, at 3 (Sept. 20, 2010); Pre-Filed Testimony of Dorevitch, at 2 (Sept. 20, 2010); CHEERS Report, at xxv (Executive Summary).

finding that the study contained anomalous or contradictory results. CHEERS is a freshwater epidemiological study that provides a substantive scientific basis on which to evaluate the effectiveness of microbial indicator systems and public health risks. CHEERS was designed to provide information that is valuable—both to the Board and to others—in the area of health risks associated with incidental contact recreation, and to address potential deficits in the current knowledge of health risks associated with limited contact water recreation, as well as measures to protect public health. In addition, CHEERS did not find an absence of risk. It found positive risk levels for three different groups of recreators, but no increased risk to CAWS users exposed to secondary treated undisinfectated effluent as compared to other water recreators (except for mild eye symptoms), and no relationship between risk and bacteria levels. So to suggest that a study clearly powerful enough to identify risks should be rejected for its negative findings is disingenuous.

Nor should the CHEERS results be rejected as contrary to established science. As IEPA has acknowledged, the state of the science surrounding secondary recreational activities has been severely lacking.<sup>40</sup> Additionally, the established scientific knowledge is not as uniform as the Commenters have suggested. Other epidemiological studies have found no association between water quality and rates of illness.<sup>41</sup> Thus, the established knowledge is mixed, and CHEERS is in fact consistent with many other studies that found differences in rates of illness among exposed swimmers and unexposed beachgoers.

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<sup>40</sup> IEPA Statement of Reasons, at 44.

<sup>41</sup> See, e.g., CHEERS Supplement, at XI-3, XI-5, citing Colford *et al.*, 2007. Water quality indicators and the risk of illness at beaches with nonpoint sources of fecal contamination. *Epidemiology* (Cambridge, Mass 18(1): 27-35; Fleisher *et al.*, 2010. The BEACHES Study: health effects and exposures from non-point source microbial contaminants in subtropical recreational marine waters. *International Journal of Epidemiology*.

The Commenters also urge the Board to disregard the Risk Assessment and CHEERS results on the grounds that regulatory decisions should not be made based on the results of a single study. This position ignores the fact that the Risk Assessment and CHEERS reports provide the best information available to the Board that is directly relevant to risks associated with incidental contact activities on the CAWS itself, rather than extrapolating from risks associated with swimming and other high-exposure activities on waters designated to support primary contact.

In addition, U.S. EPA appears to rely on a similar approach when evaluating specific questions of human health risk necessary to support rulemaking activities. For example, U.S. EPA investigated risks associated with a number of specific situations, including from agricultural animal sources of fecal contamination, marine waters impacted by urban runoff, and marine waters in a tropical region in support of its activities related to development of recreational water quality criteria.<sup>42</sup> Risks from agricultural animal sources were addressed through a quantitative microbial risk assessment (QMRA) similar to the Risk Assessment provided here.<sup>43</sup> Risks from marine waters impacted by urban runoff and marine waters in a tropical region were each addressed through a single epidemiological study.<sup>44</sup> By contrast, in order to evaluate risks associated with non-contact and incidental contact recreation on the CAWS, the District has provided both a risk assessment and an epidemiological study. Based on the U.S. EPA approach to development of recreational water quality criteria, the Risk Assessment and CHEERS reports should be sufficient to support Board action here, and the Commenters would be unlikely to argue otherwise if the results had been different.

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<sup>42</sup> See, e.g., Responses to Information Requests, Item 3, PC#565 at 65, 71, 73-74 (attaching U.S. EPA presentations concerning its recreational water quality criteria activities).

<sup>43</sup> *Id.*, PC#565 at 65, 74.

<sup>44</sup> *Id.*, PC#565 at 64, 71, 73.

Even if CHEERS were replicated, however, Dr. Gorelick has testified that replication likely would yield similar results:

MS. ALEXANDER: One more question. Dr. Gorelick, were you present yesterday when Dr. Dorevitch testified effectively that he would be surprised if another epidemiological study conducted on the CAWS with roughly the same scope came to a different conclusion or had different results concerning risk? Do you agree that would be very surprising if there was a different result in a different study?

DR. GORELICK: The most likely result would be a similar result to what they found. If you think back to the figures that – I think they were entered as exhibits, but the three posters that were presented that showed the rates of illness and the comparisons of the rates of illness....

There's an estimate of the rate of illness is 12 per thousand, and then there are some error bars around that. Error bars are what we call the 95 percent confidence interval. And what that means is if I did exactly what you suggested, if I can convince the District to give me all that money to do the study again because they wanted to replicate the results, and I did it again, that I would – 95 percent of the time if I repeat it, I would find a result that would be somewhere within that margin of error.

The most likely thing is it would be pretty close to what he found, but it would not be all that surprising if it were anywhere within that range. That's why we present those ranges. So he found a difference between CAWS and general use of 0.6, but the confidence interval went anywhere from ten more in the CAWS to 10 fewer in the CAWS.

If I did that experiment – or if I did that study and I found a difference of six, that would be completely statistically consistent with the results of the CHEERS study because it falls within that 95 percent confidence level.<sup>45</sup>

Based on this testimony, it is clear that CHEERS should not be rejected simply because it has not been replicated.

Similarly, the Commenters' complaints about the limitations of epidemiological studies generally do not demonstrate that the Board should consider the CHEERS conclusions to be invalid. The limitations of non-laboratory research generally would be true of any

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<sup>45</sup> Oct. 20, 2010 Hearing, Testimony of Gorelick, at 134-35 (emphasis added). Note that as Dr. Gorelick pointed out, although the Commenters are correct that there is a possibility that actual risks are higher than the CHEERS point estimate, there is an equal possibility that actual risks are lower.

epidemiological study; nevertheless, because such studies provide an opportunity to directly measure rather than model risk, EPA gives them considerable weight when establishing environmental standards.<sup>46</sup> The CHEERS study “actually had more power than originally designed,” due to the larger number of people enrolled, and the greater percentage who provided follow up information.<sup>47</sup>

The Commenters’ assertions concerning the inapplicability of epidemiological conclusions to “rare but severe events” similarly would apply to any epidemiological study, but do not support the conclusion that the Board should disregard the CHEERS results. The Board here must consider whether the disinfection requirements contained in the Proposed Rule are necessary to support non-contact and incidental contact recreational activities.<sup>48</sup>

The Commenters have tried to discount the CHEERS result by listing all possible elements of bias that can occur during an epidemiological study. The confounding factors that can result in bias, however, were appropriately addressed in the CHEERS Study. Dr. Gorelick and Dr. Dorevitch discussed the statistical power of the CHEERS Study to fully evaluate the risk to various CAWS subgroups. Dr. Dorevitch indicated that there are no scientific methods to determine the statistical power necessary for a study to “fully evaluate” risk. However, the CHEERS Study followed the proper procedures for determining whether a subgroup is at higher risk through “interaction analysis.”<sup>49</sup>

CHEERS was specifically designed to ensure that the study participants adequately represented the populations that use the CAWS. Dr. Dorevitch indicated that “everybody was

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<sup>46</sup> Pre-Filed Testimony of Dorevitch, at 3 (Sept. 20, 2010).

<sup>47</sup> Oct. 19, 2010 Hearing (Testimony of Dorevitch), at 133; Jun. 29, 2010 Hearing (Testimony of Dorevitch) at 21.

<sup>48</sup> Indeed, accepting the assertion that all waters must be protected for exposures at the level of such catastrophic events, or for activities that are unsafe in certain waters, would render the concept of designated uses entirely moot.

<sup>49</sup> CHEERS Supplement, at XI-5.

approached and that way we didn't select people based on what we thought the outcome might be or what the water quality might be. There really was no selection," so no selection bias should exist.<sup>50</sup> As a result, CHEERS participants were sufficiently representative of CAWS recreators for the study to be considered by the Board. The "heterogeneity bias" raised by the Commenters and initially discussed by Dr. Gorelick is not an acknowledged term that is generally addressed in the field of epidemiology.<sup>51</sup> Dr. Gorelick acknowledged that the CHEERS analysis adjusted for varying activities depending on the particular waterbody segment.<sup>52</sup> In addition, if there was any bias, it was toward surveying "more heavily exposed people in the parts of the waterway that have the highest level of indicators and pathogens."<sup>53</sup>

The Commenters suggested that CHEERS was biased as the result of invalidated questions concerning the amount of water ingested by CHEERS participants. Contrary to the Commenters' assertions, however, CHEERS questions related to water ingestion were validated, and followed the U.S. EPA-recommended study format.<sup>54</sup> As Dr. Dorevitch explained, participant responses accurately reflected ingestion levels.<sup>55</sup> Dr. Gorelick admitted as much during his testimony:

MR. ANDES: ....Are you aware that the CHEERS survey questionnaire items regarding water ingestion have been validated?

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<sup>50</sup> Oct. 19, 2010 Hearing, Testimony of Dorevitch, at 86.

<sup>51</sup> Oct. 20, 2010 Hearing, Testimony of Gorelick, at 87 ("I probably created jargon that you think I meant as a specific term.... So the term 'heterogeneity bias' is not an epidemiologic term.").

<sup>52</sup> *Id.* at 92.

<sup>53</sup> Oct. 19, 2010 Hearing, Testimony of Dorevitch, at 97-98.

<sup>54</sup> Oct. 19, 2010 Hearing, Testimony of Dorevitch, at 53 ("The questions were developed in part from the NEEAR study, the NEEAR study, NEEAR, is the US EPA's research study of the health risks of water recreation at beaches and specifically swimming at beaches.").

<sup>55</sup> *See* Oct. 19, 2010 Hearing, Testimony of Dorevitch, at 149-151.

DR. GORELICK: So now I've heard Dr. Dorevitch's testimony about the part related to how much they ingest, and they did attempt to correlate that with those chemical markers, that part has been validated.<sup>56</sup>

The Commenters are correct that CHEERS did not—and was not intended to—account for asymptomatic and secondary spread of infection. This type of analysis was also not done in the U.S. EPA NEEAR study, and as Dr. Dorevitch explained:

You know, it's sort of a two-way street. It's possible that people in CHEERS gave people outside of the study an infection. It's possible that people from outside of the study gave study participants their infection, but that isn't something that is, you know, on the front of validating information.<sup>57</sup>

The equally likely possibilities of transmission into or out of the CHEERS study group are inherent in most epidemiological studies, and should not serve as a basis for disregarding the CHEERS results.

The Commenters also allege that the CHEERS results contradict studies finding increased risks to subpopulations such as children and the elderly. However, the Commenters have overstated current science and regulatory thinking on these issues, which at this point are far from settled. U.S. EPA is investigating health risks related to these subpopulations as part of its recreational water quality criteria efforts.<sup>58</sup> The agency has found some evidence of sensitivity in children, but did not have sufficient populations to assess risks to elderly and pregnant subpopulations.<sup>59</sup> These conclusions, however are limited to risks of swimming at

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<sup>56</sup> Oct 20, 2010 Hearing (Testimony of Gorelick), at 92-93.

<sup>57</sup> Oct. 19, 2010 Hearing (Testimony of Dorevitch), at 116.

<sup>58</sup> *See, e.g.*, Responses to Information Requests, Item 3, PC#565 at 72, 83. (U.S. EPA presentations concerning its recreational water quality criteria activities, indicating some evidence of sensitivity among children swimming at beaches, possibly due to exposure and increased ingestion; insufficient populations to assess elderly and pregnant subpopulations).

<sup>59</sup> *Id.*, PC#565 at 72, 83.

beaches, and in no way reflect risks associated with secondary contact recreation.<sup>60</sup> Indeed, U.S. EPA indicated that the difference in children is potentially due to exposure and increased ingestion.<sup>61</sup> Those factors are not present on the CAWS, which are intended to protect only non-contact and incidental contact recreation, rather than swimming. U.S. EPA has not yet made a definitive statement concerning whether applicable primary contact criteria would be made more or less protective for children or other subpopulations.<sup>62</sup>

The CHEERS study followed the National Epidemiological Environmental Assessment of Recreational Water (NEEAR) study format used by U.S. EPA.<sup>63</sup> Like the NEEAR study, CHEERS was not specifically designed to recruit only potentially vulnerable populations. However, CHEERS provides the Board with sufficient information to support risk decision making on the CAWS, because CHEERS participants belonged to all age groups, including children as young as one year of age to adults older than 65.<sup>64</sup> Nothing in the CHEERS study indicated that subpopulations were at increased risk from non-contact or incidental contact exposures to CAWS waters.<sup>65</sup>

### **C. Disinfection Would Provide No Public Health Benefit**

Because direct measurements demonstrate no increased risks from recreation on the CAWS, which accepts secondary treated undisinfectated effluent, requiring disinfection at the District facilities would provide very little, if any, benefit to public health that could justify

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<sup>60</sup> *Id.*, Items 3, 14, PC#565 at 72, 83, 212.

<sup>61</sup> *Id.*, Item 3, PC#565 at 83 (“time spent in water, more likely to swallow water”).

<sup>62</sup> *Id.*, Item 14, PC#565 at 212.

<sup>63</sup> Pre-Filed Testimony of Dorevitch, at 2 (Sept. 20, 2010); CHEERS Report, at i (Abstract), xxv (Executive Summary).

<sup>64</sup> CHEERS Report, at II-8.

<sup>65</sup> *Id.*, at V-12 (“The youngest (age 0-10) and oldest (age 65 and over) participants have a statistically significant lower odds of AGI than the age 11-64 year old participants.”).

adoption of the Proposed Rule. The Commenters assert that Dr. Blatchley testified that disinfection would be beneficial. He did not.

Based on his research and analysis, Dr. Blatchley testified that imposition of the IEPA-proposed standard “will yield minimal benefit to water quality in the CAWS, and minimal reduction in the risk of disease transmission.”<sup>66</sup> During the hearings, Dr. Blatchley confirmed this conclusion, explaining that the Proposed Rule would do “very little” to achieve pathogen reductions on the CAWS.<sup>67</sup> Although, as the Commenters have pointed out, disinfection would efficiently reduce fecal indicator bacteria levels, those bacteria are not pathogens. As a result of the minimal pathogen reductions that could be achieved through compliance with the Proposed Rule, Dr. Blatchley indicated that any reduction in risks to recreational users would be only nominal:

The risks associated with recreational uses are already low, and the implementation of disinfection, as I understand it according to the risk assessment that would be – that has been performed, suggests that the risk would be only nominally improved.<sup>68</sup>

Such nominal improvements cannot reasonably be said to have significant monetary value to Cook County residents, as suggested by IEPA.

Pathogen levels in the CAWS are already low, and likely would be further reduced if and when the District implements control technologies to meet expected nutrient control requirements, as discussed above. Although the Proposed Rule containing a bacterial standard will do little to lower the already minimal risks that might be associated with pathogen levels,

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<sup>66</sup> Pre-Filed Testimony of Blatchley, III, at 3 (Aug. 4, 2008).

<sup>67</sup> Sept. 23, 2008 Hearing (morning), Testimony of Blatchley, at 101-102 (“the disinfectant exposure that would be required to satisfy that standard would yield a marginal improvement in microbial quality”), 103 (“MR. ANDES: So is it fair to say that treating for 400 using conventional disinfection may not do much to remove pathogens in the waterway? MR. BLATCHLEY: I believe that’s correct.”), 131 (“MR. ANDES: So these standards, in essence, will do nothing for pathogen reductions in the CAWS or very little? MR. BLATCHLEY: It’s not [that] they will do nothing. It’s that they will do very little.”).

<sup>68</sup> Sept. 23, 2008 Hearing (afternoon), Testimony of Blatchley, at 25.

Dr. Blatchley indicated that pathogen-specific reductions have been required in other states. Achieving such reductions in the CAWS, however, would require roughly ten time more disinfectant exposure than would be necessary to meet the Proposed Rule, and would cost up to ten times more.<sup>69</sup> Nothing in the record before the Board supports the imposition of such extreme measures here.

The Commenters also objected to the District's calculations concerning the number of days the CAWS is affected by wet weather discharges. Those objections, however, are based on a several misinterpretations of those calculations, and ultimately, do nothing to demonstrate a public health benefit from disinfection. Water quality in the CAWS is affected by a complex set of variables, including not only precipitation quantity, but also rain intensity and duration, the time from the prior precipitation, and hydrological and hydraulic factors such as ground conditions (frozen or saturated), fraction of impermeable surface, and size and slope of the sewers. Water quality parameters also play a role, because the fate of each parameter in a stream may be different. Because of the large number of potential factors, pollutants entering the CAWS through CSOs, pumping stations, municipal separate storm sewer discharges, and urban overland runoff from any precipitation can remain in the system even after the precipitation stops.<sup>70</sup> Additional information concerning wet weather effects on microbial water quality in the CAWS was provided to the Board.<sup>71</sup>

In the absence of a regulatory definition of "dry weather" for the purpose of evaluating precipitation impact on water quality that would accurately reflect fecal coliform concentrations

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<sup>69</sup> Pre-Filed Testimony of Blatchley, III, at 6 (Aug. 4, 2008); Sept. 23, 2008 Hearing, Testimony of Blatchley, at 131-132 ("MR. BLATCHLEY: I believe that's correct. If you were to apply Title 22 standards here to this sort of disinfection it would cost five or ten times more. MS. TIPSORD: More than -- MR. BLATCHLEY: More than would be required to meet the proposed standards.").

<sup>70</sup> Pre-Filed Testimony of Nemura, at 2-8 and Attachment 2 (Aug. 4, 2008).

<sup>71</sup> See Responses to Information Requests, Item 1, PC#565 at 12-51.

under a true dry weather condition, a dry weather day was defined as no measureable precipitation two days prior to the sampling day in the District sampling study.<sup>72</sup> The Risk Assessment adopted this definition as a conservative approach to evaluate combined risk for a recreation year with both dry and wet weather days.<sup>73</sup> Regardless of the number of days calculated, however, it is undisputed that wet weather has a significant impact on water quality in the CAWS, and that disinfection of District effluents will do nothing to address that impact.

Nothing the Commenters have presented serves to demonstrate that the statutory requirements for adoption of an effluent standard have been satisfied here. Incidental contact and non-contact recreation on the CAWS, which received secondary treated undisinfected discharges, poses the same low risks as similar activities on waters where no such discharges occur. Further, the risks that do exist are not associated with fecal coliform discharged in the secondary treated undisinfected effluent, which the Proposed Rule is designed to control. As a result, those discharges are not “likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare” under the Act.<sup>74</sup> Under these circumstances, the proposed bacterial effluent standards in no way reflect “the degree of treatment or control necessary to prevent pollution,”<sup>75</sup> so cannot be considered “to promote the purposes” of the Act, as is required of all Board regulations.<sup>76</sup>

The Board itself has acknowledged that necessity is a threshold factor that must be considered before imposing environmental requirements. For example, where a “condition is not

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<sup>72</sup> Pre-Filed Testimony of Rijal, Attachment V, at 4 (Aug. 4, 2008); Pre-Filed Testimony of Nemura, at 3 (Aug. 4, 2008) (“IEPA has filed to define ‘dry weather’ or what recreational activity can be attained at different locations or different times along the CAWS.”).

<sup>73</sup> Risk Assessment, at Table 5-8.

<sup>74</sup> 415 ILCS 5/3.545.

<sup>75</sup> 415 ILCS 5/11(b) (emphasis added).

<sup>76</sup> 415 ILCS 5/13(a).

necessary to achieve compliance with the Act and regulations,” the Board has determined that “it may be said that the condition is unreasonable.”<sup>77</sup> Similarly, because disinfection has not been demonstrated to be necessary to support the recreational uses proposed for the CAWS, the Proposed Rule requiring disinfection should be considered unreasonable and should not be adopted.

## **II. Disinfection is not Economically Reasonable**

Regardless of which cost estimates are considered, there can be no genuine dispute that compliance with disinfection requirements at District facilities would impose a substantial economic burden on the residents of Cook County. The Board must therefore consider the economic reasonableness of imposing those requirements before adopting the Proposed Rule, in accordance with the Act.<sup>78</sup> The District believes that it has demonstrated that disinfection is not economically reasonable—not simply because it is tremendously costly to taxpayers and the environment, but because those high costs cannot be justified where the requirements proposed are not necessary to protect the environment or public health and would provide only minimal benefits at best. The Illinois Supreme Court has indicated that such a balancing of the “cost of compliance against the benefits to be achieved” is appropriate under the Act.<sup>79</sup>

Although under some circumstances, a costly or burdensome regulation might nevertheless be considered necessary to prevent serious human health risks, such risks are not present here.<sup>80</sup> Balancing the substantial costs of disinfection against its negligible benefits, the

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<sup>77</sup> *Citizens Utilities Co. of Illinois v. IEPA*, PCB 85-140, at 6 (Oct. 16, 1992).

<sup>78</sup> 415 ILCS 5/27(a) (“In promulgating regulations under this Act, the Board shall take into account...the technical feasibility and economic reasonableness of...reducing the particular type of pollution.”).

<sup>79</sup> *Granite City Division of National Steel Co. v. IPCB*, 155 Ill.2d 149, 183-84, 613 N.E.2d 719, 734-35 (1993).

<sup>80</sup> See, e.g., *Granite City*, 155 Ill.2d at 182-84 (upholding Board finding of economic reasonableness where costs “upwards of several millions of dollars per year” would reduce toxic pollution and result in aquatic and human health benefits).

Board should determine that the Proposed Rule is economically unreasonable.<sup>81</sup> Implementation of the proposed disinfection requirements would result in significant costs to area residents, adverse economic impacts to District Operations, and adverse environmental impacts.

Considering all of the factors specified by the Act, including the lack of economic reasonableness demonstrated here, the Board should decline to adopt the Proposed Rule.

The District has estimated the costs of disinfection in its three CAWS facilities with either UV technology at a 20-year present worth of \$919.6 million.<sup>82</sup> These costs alone would present a significant burden to the District and the community it serves. Imposition of the exorbitant costs that would result from the proposed Rule would require extraordinary measures to approve funding, or could have significant adverse effects on the District's ability to fund other initiatives. Based on the District's limitations and restrictions on generating revenues to fund programs, funding disinfection would require legislative action, a voter referendum, or significant reductions in funding the District's existing capital improvement plan, which is designed to maintain and upgrade the District's aging infrastructure.<sup>83</sup>

Moreover, disinfection costs should be viewed in the context of the additional requirements that the District may face, including the dissolved oxygen standards proposed in this rulemaking, and expected nutrient control requirements. The District has provided cost estimates and a summary of the financial impacts of disinfection and dissolved oxygen

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<sup>81</sup> As noted above, and contrary to assertions by the Commenters, the Board is not required to evaluate disinfection costs in accordance with UAA factor 6, which allows removal of designated uses or modification to existing water quality criteria if certain social and economic impacts can be demonstrated. 40 CFR 131.10(g). The Proposed Rule is just that—proposed. Therefore, the Board should evaluate the factors necessary to support adoption of a new standard, rather than requiring the District to meet a standard applicable only to removal or modification of an already existing standard. UAA factor 6 is relevant only when the Board is determining whether to adopt the uses proposed for the CAWS, which are not at issue in this subdocket.

<sup>82</sup> Pre-Filed Testimony of Zenz, at 9 (Aug. 4, 2008); Pre-Filed Testimony of Granato, at 7 (Aug 4, 2008); Pre-Filed Testimony of Granato, at 5 (Sept. 20, 2010).

<sup>83</sup> Pre-Filed Testimony of Granato, at 7-8 (Aug. 4, 2008); Pre-Filed Testimony of Granato, at 5 (Sept. 20, 2010).

requirements under possible nutrient reduction scenarios.<sup>84</sup> For UV disinfection, dissolved oxygen facilities, and the lower cost nutrient removal option, it is anticipated that the District would exceed its debt service extension limit beginning in beginning in 2015 and its tax cap limitation beginning in 2021. In addition, the District's debt financing needs would exceed its non-referendum bonding authority beginning in 2015.<sup>85</sup>

Even if the tax cap limitation, non-referendum bonding authority, and debt service extension base were raised to allow the District to generate sufficient revenues to pay for the facilities, there would be a pronounced impact on the taxpayers if the District were to construct and operate UV disinfection, dissolved oxygen facilities, and nutrient removal processes.<sup>86</sup> Considered in the context of all future District obligations, taxes under the lower cost nutrient removal option would have to increase by over 115 percent, and user charges would increase by approximately 61 percent.<sup>87</sup>

The Commenters suggest that the Board should find the Proposed Rule economically reasonable because Cook County residents would be willing to pay almost \$1 billion for improved water quality on the CAWS.<sup>88</sup> This conclusion, however, is based on data not comparable to circumstances on the CAWS, and presumes a water quality benefit that will not occur if the Proposed Rule is adopted. Dr. Boyle never surveyed Cook County residents directly.<sup>89</sup> Instead, his conclusion is based on data gleaned from studies conducted in other areas, such as a study of lakefront property owners who would realize property value increases

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<sup>84</sup> See generally, Responses to Information Requests, Item 7, PCP#565 at 145-180.

<sup>85</sup> *Id.*, Item 7E, PC#565 at 167.

<sup>86</sup> *Id.*

<sup>87</sup> *Id.*, Item 7D, PC#565 at 157; Item 6, PC#565 at 112.

<sup>88</sup> See Pre-Filed Testimony of Boyle, at 1 (Aug. 4, 2008).

<sup>89</sup> May 20, 2009 Hearing, Testimony of Boyle, at 11 ("MR. ANDES: So you haven't actually asked the people of Cook County how much they're willing to pay. Am I right? DR. BOYLE: We have not.").

from increased clarity of lakes.<sup>90</sup> As a result, the Board should not accept Dr. Boyle's estimates as an accurate representation of Cook County residents' willingness to accept the economic impacts described above in return for a possibly negligible reduction in pathogen levels to address very minor risks. Given the current economic climate, and the hardships being experienced in the City of Chicago, Cook County, and throughout the state, it is clearly unreasonable to require such costly measures for so little potential return. This is particularly true considering that the already low pathogen levels in the CAWS likely would be further reduced if and when the District implements control technologies as part of expected nutrient control measures, as discussed above.

The Commenters argue that the Board should not consider the costs of disinfection that would result from increased energy use and the associated air emissions. This position ignores the Board's statutory obligations, which necessarily involve a balancing of all relevant costs against the possible benefits of a proposed regulation.<sup>91</sup> The District has demonstrated that the Proposed Rule would likely result in significant adverse environmental impacts, including air emissions, water quality impacts from additional stormwater runoff, and increased land usage.<sup>92</sup> All of these environmental impacts should be weighed against the negligible human health benefits of disinfection as the Board considers whether the substantial costs of the Proposed Rule are reasonable.

The District has clearly demonstrated that the disinfection that would be required to reduce fecal coliform levels in accordance with the Proposed Rule would not be economically

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<sup>90</sup> Pre-Filed Testimony of Boyle, at 12 (Aug. 4, 2008).

<sup>91</sup> See *Granite City*, 155 Ill.2d at 183-84.

<sup>92</sup> Pre-Filed Testimony of McGowan, at 5-7 (Aug. 4, 2008); Mar. 3, 2009 Hearing, Testimony of McGowan, at 14-16; Exhibit 215 on Board Docket (Table – Comparison of GHG Emission Estimates Based on Original and Updated Emission Factors).

reasonable—particularly in light of the negligible benefits that might be gained. Although the lack of economic reasonableness does not by itself preclude adoption of the Proposed Rule, it is entirely appropriate for the Board to balance such minimal public health benefits against the tremendous financial burden to Cook County residents in determining whether to adopt the Proposed Rule. In fact, as the Illinois Supreme Court has indicated, the Board must “use its technical expertise and judgment in balancing any hardship that the regulations may cause to dischargers against its statutorily mandated purpose and function of protecting our environment and public health.”<sup>93</sup> Considering as a whole the factors specified for promulgation of regulations under the Act—including existing physical conditions of the CAWS, the existing water quality that results in very low risks to recreational users, and the lack of economic reasonableness presented here—the Board should decline to adopt the Proposed Rule.<sup>94</sup>

### **III. Conclusion**

The Board is authorized to adopt the Proposed Rule only if it is necessary to prevent pollution that would be harmful to public health, and only after consideration of economic reasonableness. Nothing presented by the Commenters demonstrates that those requirements have been met. As a result, the Board should decline to adopt the Proposed Rule.

Dated: January 31, 2011

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<sup>93</sup> *Granite City*, 155 Ill. 2d at 183.

<sup>94</sup> 415 ILCS 5/27(a) (“In promulgating regulations under this Act, the Board shall take into account the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution.”).

**METROPOLITAN WATER RECLAMATION  
DISTRICT OF GREATER CHICAGO**

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