



NATURAL RESOURCES DEFENSE COUNCIL

January 8, 2007

VIA HAND DELIVERY

Office of the Clerk
United States District Court for the Central District of California
312 N. Spring St., Rm G-8
Los Angeles, CA 90012

Re: *Natural Resources Defense Council v. Johnson et al.*, Case No. 2:06-cv-04843-GAF

Dear Clerk of Court,

Enclosed for filing in the above-captioned matter are the following documents:

- Original and one copy of Plaintiff's Response to NACWA's Motion to Intervene (with Exhibits A and B attached);
- Original and one copy of Plaintiff's Certificate of Service.

Also enclosed is a stamp-and-return copy, to be returned to our messenger. Thank you for your assistance. Please call me at (202) 513-6273 if you have any questions.

Sincerely,

Kathryn Boudouris

cc: Attorneys for National Association of Clean Water Agencies
Attorneys for Defendants

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11
12 UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA

13 NATURAL RESOURCES) Case No. 2:06-cv-04843-GAF
14 DEFENSE COUNCIL)
15 Plaintiff,) **NATURAL RESOURCES DEFENSE**
16 v.) **COUNCIL'S RESPONSE TO**
17) **NATIONAL ASSOCIATION OF**
STEPHEN L. JOHNSON,) **CLEAN WATER AGENCIES'**
18 ADMINISTRATOR,) **MOTION TO INTERVENE**
19 UNITED STATES ENVIRONMENTAL)
PROTECTION AGENCY, and) Judge: The Hon. Gary A. Feess
20 UNITED STATES ENVIRONMENTAL)
PROTECTION AGENCY) Hearing Date: January 22, 2007
21) Hearing Time: 9:30 a.m.
22) Courtroom: 740
23)
24) CLEAN WATER ACT CASE
25)
26)
27)
28)
Defendants.)

24 Plaintiff Natural Resources Defense Council ("NRDC") hereby
25 responds to National Association of Clean Water Agencies'
26 ("NACWA's") motion to intervene, filed on December 13, 2006.
27 While NRDC does not oppose NACWA's intervention in this suit,
28 NRDC does oppose NACWA's intervention as a party-Plaintiff.

1 NACWA's interests conflict with Plaintiff NRDC's and are more
2 closely aligned with those of the Defendants, Administrator
3 Stephen L. Johnson and the United States Environmental
4 Protection Agency ("EPA"), as is apparent from NACWA's own
5 filings.

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7 In its motion to intervene, NACWA stresses how "divergent"
8 its interests are from NRDC's. NACWA's Mot. at 10. A brief
9 comparison of the asserted interests confirms this divergence.
10 NRDC has brought suit on its own behalf and on behalf of its
11 member beach-goers whose health, recreational, and aesthetic
12 interests are harmed by EPA's failure to comply with its non-
13 discretionary duties under the BEACH Act. In particular,
14 because of EPA's failure to develop and publish new water
15 quality criteria, NRDC's members are exposed to dangerously
16 polluted beachwater and deprived of necessary safety
17 information. Complaint ¶¶ 11-13. NRDC submits that EPA must
18 research, develop, and publish water quality criteria that
19 account for all types of illnesses, all types of pathogens that
20 pollute coastal waters, and all sources of beachwater pollution,
21 and that protect against both one-time and repeated exposure to
22 polluted waters. *Id.* ¶ 18; see 33 U.S.C § 1254(a)(v) (mandating
23 studies that assess, *inter alia*, broad array of illnesses,
24 indicators, and geographic conditions); *id.* § 1254(b)(9)
25 (mandating revised criteria based on the results of these
26 studies).
27
28

1 NACWA, for its part, seeks to intervene on its own behalf
2 and on behalf of its member agencies that own and operate water
3 treatment facilities - agencies that have made "wastewater and
4 stormwater infrastructure investments" and face "financial
5 constraints" stemming from EPA's current and future beachwater
6 criteria. NACWA's Mot. at 2. These ownership interests,
7 according to NACWA, are harmed in part by EPA's failure to
8 publish new water quality criteria because the current, outdated
9 standards (derived from EPA's current, outdated criteria) are
10 costly and "difficult for many facilities to achieve." NACWA's
11 Mot. at 2; see NACWA's Proposed Complaint ¶ 11; 33 U.S.C. §§
12 1313(i)(1)(B), (2)(A) (states with coastal waters "shall adopt"
13 new or revised water quality standards in accordance with EPA's
14 newly published water quality criteria; if states default on
15 this obligation, EPA must set forth such standards).

16
17
18 The logical implication of this assertion is that NACWA
19 seeks updated criteria that are cheaper and easier to achieve,
20 and therefore likely less stringent and less protective than the
21 existing criteria - the inverse of what NRDC seeks. *Compare,*
22 *e.g.,* Complaint ¶ 18 (seeking criteria that account for all
23 types of illnesses, pathogens, and pollution sources, that
24 account for vulnerable subpopulations, and that protect against
25 one-time and long-term exposure to polluted waters) *and* NRDC
26 Comments (Aug. 9, 2004), Exh. A at A-11 (characterizing E-coli
27 and enterococci criteria as superior to a fecal coliform
28

1 criterion, but advocating for the development of even more
2 criteria based on other pathogen indicators) *with* NACWA's Mot.
3 at 2 (impliedly advocating for fecal coliform criterion only,
4 which would be inexpensive and relatively easy for most
5 treatment facilities to meet but would *not* account for all types
6 of illnesses and all types of pathogens) *and* NACWA's Proposed
7 Complaint ¶ 11 (same).

8
9 Similarly, in comments that NACWA (under its former name,
10 the Association of Metropolitan Sewerage Agencies) filed on
11 August 9, 2004, NACWA opposed EPA's proposed "single sample
12 maximum," which is designed to protect against one-time exposure
13 to polluted beachwater, and argued that a standard based on
14 long-term geometric mean is sufficiently protective of beach-
15 goers - again, the inverse of what NRDC seeks. *Compare* NRDC
16 Comments (Aug. 9, 2004), Exh. A at A-9 to A-10 (advocating for
17 an especially protective single sample maximum) *with* NACWA
18 Comments (Aug. 9, 2004), Exh. B at B-17 to B-18 (opposing the
19 very notion of a single sample maximum). In these same
20 comments, NACWA also protested the stringency of EPA's current
21 criteria, complaining that these criteria are based solely on
22 studies of "highly polluted U.S. coastal marine environments"
23 and not also on studies of "beaches noted for uncontaminated,
24 pristine swimming conditions." Exh. B at B-15. Along nearly
25 all metrics of protectiveness, then - types of illnesses, types
26 of pathogens, one-time versus long-term exposure - NACWA's
27
28

1 interests in seeking new criteria are opposed to NRDC's.

2 Moreover, unlike NRDC and somewhat paradoxically, NACWA
3 alleges harm caused by the future *publishing* of the overdue
4 criteria - the very criteria that NACWA purportedly seeks to
5 have published. NACWA's Mot. at 9. NACWA's members hold
6 pollutant discharge permits that NACWA asserts will have to be
7 altered to comply with the newly applicable standards for
8 pathogens and pathogen indicators. NACWA's Mot. at 7, 10; Dunn
9 Decl. ¶¶ 9-10. NACWA thereby purports to suffer two
10 contradictory harms: first, the costs of achieving compliance
11 with the current, outdated standards that are "difficult . . .
12 to achieve," NACWA's Mot. at 2; and second, the costs of
13 achieving compliance with future standards stemming from EPA's
14 overdue criteria.
15

16 The former harm places NACWA in opposition to Plaintiff
17 NRDC (insofar as NACWA seeks less stringent criteria), and the
18 latter harm aligns NACWA with Defendant EPA. Like NACWA, EPA
19 will have to bear the costs of compliance: not the costs
20 associated with altered pollution discharge permits, but the
21 costs of researching and developing new criteria and the costs,
22 shared by other regulated entities under the BEACH Act (namely,
23 states), of implementing a monitoring and notification program
24 in states where no such program exists, 33 U.S.C. § 1346(h).
25 NACWA and its members are therefore not the only "front-line
26 water quality managers" and "regulated entities" involved in
27
28

1 this lawsuit. NACWA's Mot. at 3. EPA is also a regulated
2 entity, at least in part; that EPA is also a regulator does not
3 defeat this partial alliance with NACWA. Although EPA's
4 interests may be broader than NACWA's, some of their cost-
5 related interests still align.

6
7 Given NACWA's partial concordance with EPA and its absolute
8 discordance with NRDC, NACWA should be allowed to intervene, if
9 at all, as party-Defendant, not as party-Plaintiff. Thereafter,
10 if NACWA is granted leave to intervene, it should be treated as
11 Defendant for practical purposes during this litigation. For
12 example, should the Court direct any joint filing, NACWA should
13 be directed to file a joint brief with EPA. Similarly, should
14 the Court apportion time during an oral argument, NACWA should
15 share in time provided to Defendant.
16

17
18 Respectfully submitted,

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Dated: January 8, 2007

EXHIBIT A

August 9, 2004

Transmitted via internet, fax, and US Mail

Water Quality Standards for Coastal and Great Lakes Recreation Waters
Environmental Protection Agency
Mailcode: 4305 T
1200 Pennsylvania Ave., NW
Washington DC 20460
Fax: (202) 566-0409
E-mail: wilcut.lars@epa.gov

Re: Docket ID No. OW-2004-0010. Comments on the US EPA's proposed bacteria water quality standards for coastal and great lakes recreational waters

To Whom It May Concern:

The Natural Resources Defense Council (NRDC) is pleased to submit these comments on the US EPA's proposed pathogen water quality standards. These proposed rules were published July 9, 2004 in the Federal Register, 69 Fed. Reg. 41720, and would be codified at 40 C.F.R. § 131.41.

EPA proposes to promulgate standards for states that have not yet adopted pathogen criteria consistent with the Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH Act). The BEACH Act amended the Clean Water Act (CWA), requiring the states to develop new water quality standards for coastal and recreational waters consistent with the US EPA's CWA Section 304(a) pathogen criteria developed in 1986. States were to have adopted these criteria by April 10, 2004. For the states that have not complied with this deadline, EPA is under a mandatory duty to "promptly promulgate" regulations. 33 U.S.C. § 1313(i)(2)(A).

NRDC supports EPA's decision to promulgate of standards as consistent with its mandatory duty under the statute. NRDC is, however, opposed to certain specific components of the rule. NRDC asks the EPA to modify this proposed rule consistent with these comments and promptly proceed with promulgation of a final rule for those states that continue to lack adequate standards. As four months have already elapsed since the statutory deadline for states to have adequate pathogen criteria in place, NRDC encourages the EPA to move forward promptly.

Pathogen Standards must be “as stringent as” EPA’s 1986 criteria document adopted pursuant to Section 304(a)

The “heart” of the proposed rule is the promulgation of standards consistent with the US EPA’s current 304(a) criteria, entitled *Ambient Water Quality Criteria for Bacteria-1986*. EPA’s proposed criteria define geometric mean and single sample maximum (SSM) criteria that are consistent with the agency’s 1986 304(a) criteria document. These 1986 304(a) criteria are based on an “acceptable swimming associated gastroenteritis rate per 1000 swimmers” of 8 in fresh waters (.8 per cent) and 19 in marine waters (1.9 per cent).

However, EPA is considering basing the acceptable rate of swimming-associated illnesses on a 1% risk level instead of the .8% risk level, asserting that this is justified because the observed data do not permit EPA to extrapolate beyond the 1% threshold. 69 Fed. Reg. at 41724-25. While NRDC appreciates the technical difficulties associated with standards development for bacteria, NRDC believes that the standards promulgated should be based upon the .8 percent acceptable risk level. If EPA were to permit standards to be based on a 1% acceptable illness rate, this standard would, statistically speaking, allow for a 25% greater number of swimming-associated illnesses. Such a standard would thus not be “as protective of human health” as EPA’s 1986 304(a) criteria document, and thus would not be consistent with the requirements of Section 303(i) of the Clean Water Act. Therefore, EPA should promulgate criteria based on the .8% acceptable illness rate, because any higher acceptable risk levels would not be “as protective of human health” as the agency’s 1986 304(a) criteria and thus would not be consistent with the requirements of the CWA as modified by the BEACH Act.

Single Sample Maximum Criteria

The EPA proposes to implement the agency’s 304(a) criteria for the single sample maximum (SSM) number by defining the following terms: designated beach waters; moderate use coastal recreation waters; light use coastal recreation waters; and infrequent use coastal recreation waters. EPA then proposes SSM criteria based on confidence level numbers for each subcategory of recreational waters consistent with the 1986 criteria. The SSM confidence level numbers are based upon statistical correlations between the SSM numbers and violation of the applicable geometric mean criteria. These numbers are 75%; 82%; 90%; and 95%, and correlate respectively with the designated beach waters; moderate use waters; light use waters; and infrequent use waters.

The EPA proposed rule suggests multiple alternatives to the preferred alternative outlined above. NRDC endorses the following alternative proposal outlined by the US EPA in the proposed rule:

“EPA is also considering promulgating only the 75 percent confidence level SSM that would apply to all coastal recreation waters of the States and Territories included in the final rulemaking. This approach applies the most stringent SSM to all coastal recreation waters and is thus more protective than the 1986 bacteria criteria. However, it also simplifies the application of the standards by eliminating the need to delineate which SSM applies to specific coastal recreation waters.” 69 Fed. Reg. at 41726.

NRDC strongly supports this option. EPA identified the 75% confidence interval as the most appropriate number to rely on for making beach closure and public notification decisions in the agency’s June 2003 draft document, *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*. The EPA Office of Water recently endorsed these recommendations in its: *Recreational Beach Monitoring Guidance - Issues and Recommendations: a review of current EPA monitoring recommendations and recent studies* (including ORD EMPACT Beaches Project), December 2003 Draft.

In summary, while the geometric mean number is an appropriate standard to continue to use, along with an appropriate SSM number or numbers, in making use support decisions, EPA’s more current science recommends that the EPA and the states use the 75% confidence interval number as the primary criterion for beach advisory and closure decisions. The 75% SSM number is more protective than the EPA’s proposed approach; simpler to implement and enforce; and represents the most scientifically defensible criterion. EPA should not allow itself to become “locked into” its 1986 criteria document where subsequent research and science support the promulgation of more stringent criteria.

Compliance Schedules & Enforcement

The EPA proposed rule, as applied to those states that have not adopted regulations that are “in effect for CWA purposes authorizing compliance schedules for [Water Quality Based Effluent Limits] WQBELs,” gives such states the option to include such compliance schedules. EPA also limits compliance schedules to five years, but solicits comments on whether “the limitation of five years for compliance schedules is reasonable or should longer schedules be allowed for certain permit activities that require extensive studies and construction activities.” NRDC believes that five years is an ample maximum for compliance schedules and that longer compliance schedules should be disallowed. NRDC’s opposition to compliance schedules longer than 5 years is based on its understanding of the requirements of the Clean Water Act, which limits the term of every permit to 5 years and requires every permit to require compliance with water quality based and technology based standards. 33 U.S.C. 1342(a) & (b)(1)(B). Compliance schedules that exceed 5 years are, therefore, illegal. In addition, these standards should be no surprise to any NPDES permitting authority or permittee. They are based on water quality criteria that have been in place since 1986, i.e., 18 years, and

the requirement that states adopt them has been in federal law since the BEACH Act was passed in December of 2000. Five additional years is long enough to get them implemented.

Mixing Zones

The US EPA's proposed rule nowhere mentions the use of "mixing zones" to permit compliance with pathogen criteria. NRDC opposes the use of mixing zones to comply with pathogen criteria for recreational waters, and asks EPA to insert into its proposed rule a requirement that mixing zones not be used. Use of mixing zones would not be as protective as the requirements in the 1986 water quality criteria document.

In the alternative, NRDC comments that, if mixing zones are allowed by the rule, EPA should add a requirement that they be used only in conjunction with permanent signage warning recreational users to not swim in the waters to which they apply since localized exceedances of EPA criteria will be authorized in those waters. In other words, if EPA is authorizing discharges that will violate its own public health-based standards, it should at least be doing so openly with appropriate and effective notice to the public of the increased risks.

We raise a number of related issues concerning BEACH Act implementation below:

Improved Pathogen Criteria

It is increasingly clear that EPA's recommended E-coli and enterococci criteria, while superior to the indicators such as fecal coliform bacteria, only correlate to the likelihood of the presence of pathogenic bacteria, and do not correlate well with the existence of other pathogen forms such as viruses. See Mark Dorfman & Nancy Stoner, *Testing the Waters*, Chapter 2, Aug. 2004, www.nrdc.org.

EPA is under a mandatory duty to develop modified coastal water quality criteria. 33 U.S.C. § 1314(a)(9). A viral indicator should be adopted as part of that requirement. EPA should proceed as quickly as possible with the development and adoption of a criterion for pathogen indicators that correlate with contamination of recreational waters by viruses and other non-bacterial pathogens. EPA should proceed with research and development of such additional water quality criterion under CWA Section 304(a)(9). EPA must revise its coastal water quality criteria by October 10, 2005. Such a 304(a)(9) criterion, once developed, should be used to review state water quality standards under Section 303(c) and to promulgate federal water quality criteria as appropriate.

NRDC also encourages EPA to accelerate ongoing research into beachwater testing methods for pathogens that can provide immediate results. Currently available tests usually take 24 hours or longer to provide results. Faster testing methods would improve

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public safety by minimizing the risk of unwitting public exposure to waterborne pathogens.

Integrating WQS into NPDES Permits

The BEACH Act anticipated that relevant criteria would be integrated formally into the Clean Water Act's regulatory system. A plain reading of statutory text outlines that BEACH Act water quality standards merely amend those provided for in described in sections 302 and 303 of the Clean Water Act. 33 U.S.C. §§ 1312, 1313. EPA's guidance on this issue, as put forth in the *Draft Implementation Guidance for Ambient Water Quality Criteria for Bacteria*, requires that the permitting authority develop permits designed to attain water quality standards. *Draft Implementation Guidance for Ambient Water Quality Criteria for Bacteria*, at 5.2.1; see 40 C.F.R. 122.44 (d). While this statement is consistent with the Clean Water Act, the guidance suggests elsewhere that states have ultimate discretion as to how water quality standards will be attained. *Id.* at 5.2.2. Given uncertainty within the regulated community, this guidance does not provide adequate clarification that all NPDES permits authorizing discharges into waters covered by the BEACH Act must ensure compliance with the new bacterial standards, including through setting water-quality based effluent limits when necessary to achieve compliance. We ask EPA to inform clearly the regulated community, including publicly owned treatment works, of their obligation to meet these water quality standards.

Monitoring, Public Notification, and Beach Closures

The BEACH Act was initiated to ensure that the CWA was responsive to the special environmental and health standards associated with recreational waters. To make these goals relevant, EPA's performance criteria must assure that public notification and other communication between levels of government occur whenever water quality standards are exceeded.

The National Beach Guidance Performance Criteria, states: "Advisories or closings, as appropriate, must be issued when indicator bacteria levels exceed the state or tribal water quality standard and there is not reason to doubt the accuracy of the sample." *National Beach Guidance Performance Criteria*, at 5.3.2. While the guidance is correct to mandate various reporting and notification requirements when "indicator bacteria levels exceed a water quality standard," the guidance also directs that "if there is reason to doubt" the accuracy of the sample, the relevant entity may resample before providing public notice. Compare *id.* at 5.1 with *id.* at 5.3.3. In fact, the guidance practically incorporates re-sampling (before notification) into the *routine* operation of the notification process. See, e.g., *id.* Table 4-2 at B. ("When a bacterial concentration exceeds a water quality standard, a state, tribe or local government must immediately either issue a public notification or resample.").

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We note that at the local level, temptation to re-sample may be great, and we fear that a loose standard, without more specific guidelines as to when re-sampling may occur, will result in unreasonable delay in disseminating critical water quality information. We ask EPA to require notification whenever a water quality standard for bacteria is exceeded even if re-sampling will occur.

In summary, the NRDC supports an EPA promulgation of standards consistent with the mandate of the BEACH Act. However, deficiencies in the proposal threaten to run afoul of the requirements of the law. NRDC recommends that EPA modify its proposed rule as proposed in these comments and proceed promptly to publish such a modified rule. We appreciate EPA's commitment to this important environmental and public health concern and urge EPA to promptly comply with all BEACH Act requirements.

Sincerely,

/s

Nancy Stoner
Director, Clean Water Project
(202) 289-2394

EXHIBIT B

President
William B. Schatz
General Counsel
Northeast Ohio Regional
Sewer District
Cleveland, OH

Vice President
Donnie R. Wheeler
General Manager
Hampton Roads Sanitation
District
Virginia Beach, VA

Treasurer
Dick Champion, Jr.
Director
Water Pollution Control
Department
Independence, MO

Secretary
Christopher M. Westhoff
Assistant City Attorney
City of Los Angeles
Department of Public Works
Los Angeles, CA

Executive Director
Ken Kirk

August 9, 2004

Water Quality Standards for Coastal and Great Lakes Recreation Waters
Docket ID OW-2004-0010
U.S. Environmental Protection Agency, Mailcode: 4305T
1200 Pennsylvania Ave., NW
Washington, DC 20460
Email: wilcut.lars@epa.gov

VIA ELECTRONIC MAIL

Dear Sir or Madam:

The Association of Metropolitan Sewerage Agencies (AMSA) is pleased to offer the following comments on the U.S. Environmental Protection Agency's (EPA or Agency) proposed rule, *Water Quality Standards for Coastal and Great Lakes Recreation Waters* (July 9, 2004; 69 Fed. Reg. 41720). AMSA commends EPA for taking action to comply with the mandates under the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000, and for the Agency's continuing commitment to improving the quality of our nation's beaches.

Over the past three years, AMSA has commented on several related EPA actions. These include EPA's May 2002 draft implementation guidance¹ for the 1986 bacteria criteria, which still is not final. AMSA's comments on those Agency efforts remain valid today, especially as they regard the 1986 criteria values themselves and our concerns with the lack of EPA-approved test methods for *E. coli* and enterococci. In addition to the implications of changing the indicator organisms for measuring bacteria levels, EPA's July 9 proposed rule is of particular interest to AMSA's members because it interprets the term "single sample maximum" and clarifies how it is intended to be used under the 1986 bacteria criteria.

¹ *Implementation Guidance for Ambient Water Quality Criteria for Bacteria*, May 2002 Draft, EPA-823-B-02-003

AMSA's comments on the proposed rule follow for your consideration.

I. Continuing Concerns with the 1986 Criteria

AMSA continues to question the scientific validity of the 1986 *Ambient Water Quality Criteria for Bacteria*.² On a number of occasions, AMSA has commented on the flaws in the original studies underlying the criteria and the fact that no studies to confirm the criteria have been conducted since they were first established.

A. Underlying Studies and Data Have Not Been Validated

The 1986 enterococci criterion, for example, was developed based on very limited and known to be highly polluted U.S. coastal marine environments. The sampling only looked at New York City, NY; Lake Ponchartrain, LA; and Boston Harbor, MA beaches. These data were further limited to narrow testing periods: 1973 to 1975 for New York City; 1977 and 1978 for Lake Ponchartrain; and 1978 for Boston Harbor. We are not aware of any recent examination of beaches noted for uncontaminated, pristine swimming conditions, nor of published literature post-1980 that verifies the 1986 criteria values.

B. Study Results Inconclusive and Potentially Biased

A closer look at the studies used to support the 1986 criteria reveals additional problems. Nine testing periods were used for data collection and statistical comparison of the results at New York City beaches, but only two (22%) of the nine tests found a statistically significant difference in the illness symptoms between swimmers and non-swimmers. In addition, the determination of illness in all the studies came from highly-subjective – and often erroneous – self-diagnosis of interviewed persons. These persons often were members of the same family unit, creating additional potential bias in the reported illnesses.

C. Criteria Fail to Consider Non-Human Sources of Contamination

The 1986 criteria also look only at human bacterial contributions. However, it is now possible to routinely and economically determine the source of fecal indicator organisms, whether stemming from humans, birds, pets, livestock, or wildlife. Recent studies in Virginia, for example, in areas with elevated enterococci levels have shown that natural sources of bacteria, such as geese, seagulls and wildlife, can significantly impact bacterial counts. EPA has not provided guidance on how to account for the impact of these sources on bacterial counts when implementing the 1986 criteria.

D. Additional Research Is Needed Before Criteria Are Implemented

Our knowledge of bacterial sources and contamination has advanced significantly since the data underlying the criteria were collected in the 1970's and the criteria were published in 1986. The methods of enumeration have also improved to eliminate old problems that had unknown effects on

² *Ambient Water Quality Criteria for Bacteria*, January 1986, EPA 440/5-84-002

the analysis results. Ultimately, the only way to respond to these serious concerns regarding the 1986 criteria is for EPA to conduct additional research using up-to-date methods and experience on the suitability of *E. coli* and enterococci as indicator organisms. Given that the statutory deadlines in the BEACH Act will not allow EPA to take additional research and epidemiological studies into consideration before states are required to make wholesale changes to their water quality standards and discharge permits, AMSA urges EPA to work with the states and permittees to implement the new standards in as careful and responsible a manner as is possible.

II. Lack of Guidance and EPA-Approved Test Methods Hamper Implementation

The lack of implementation guidance for the 1986 criteria and EPA-approved test methods for enumerating *E. coli* and enterococci are two reasons why many states have yet to adopt the 1986 criteria. Until these issues are fully resolved, they will continue to affect implementation of the proposed criteria.

A. Implementation Guidance

Drafts of the implementation guidance were released in May of 2002 and November 2003. EPA indicated that the guidance might be finalized in Spring 2004. EPA, however, has now informed stakeholders that the guidance may never be finalized. Even more troubling is the fact that key components of the guidance have been rolled into the proposed rule, which will likely only result in providing less flexibility to states in how they implement the standards.

B. Test Methods

Currently there are no EPA-approved test methods for enumerating *E. coli* or enterococci in wastewater effluent. EPA has over the past few years validated and approved test methods for enumerating these indicators in ambient water, but those approvals exclude effluent as an approved sample matrix. This is a serious concern that will undermine widespread implementation of the 1986 bacteria criteria. AMSA understands that EPA is validating the approved ambient water test methods for use on effluent, but that there have been problems with false negatives during the validation efforts and that additional study may delay proposal of the methods until late 2004, with final, approved methods not available until sometime in 2005.

While many wastewater treatment agencies have begun to evaluate their effluents for the new indicators using various test methods to get out ahead of the regulations, knowledge regarding the effectiveness of current disinfection practices on enterococci and *E. coli* remains limited at best.

In preliminary studies, one AMSA member has identified differences between *enterococcus* methods when analyzing wastewater samples – one method (EPA Method 1600) shows consistently lower counts than the other (SM 9230C) in treated wastewater, and suggests that Method 1600 (the subject of EPA's ongoing validation efforts) is inappropriate for wastewater analysis. The marked difference between the two methods is particularly worrisome if EPA or states use enterococcus results analyzed with Method 1600 to determine achievable limits in treated wastewater. Enterococcus concentrations in chlorinated wastewater analyzed with Method 1600

may be artificially low, and these artificially low results may lead to the false conclusion that meeting proposed EPA limits is achievable in chlorinated wastewater when in fact it is not.

III. Interpretation of "Single Sample Maximum"

In the July 9 proposal's preamble, EPA seeks comment on interpretations of the term "single sample maximum (SSM)" because the 1986 criteria document does not interpret the meaning of the term. EPA posits that one possible interpretation is that the SSM is a single value never to be exceeded. AMSA strongly disagrees with this interpretation, as it is inconsistent with other EPA guidance and not reflective of the level of protection the 1986 criteria are intended to provide.

A. Concerns Regarding the SSM

Single sample maximum (SSM) is a seriously flawed concept for bacteria, because of the nature of bacterial sampling, detection and enumeration. Differences in single sample measurements are often meaningless. Analytical results are actually estimates of true concentrations based on a series of assumptions. This is a major reason for the established, and EPA recommended practice, of using geometric means to characterize bacterial conditions. As an example, the Most Probable Number (MPN) fecal determination is considered one of the most precise of all the bacterial density determinations. According to Standard Methods (1992), when use of the MPN technique results in a detected concentration of 110 MPN/100 ml, a 95% confidence can be used that the real number is between 40 and 300. Single sample differences between numbers like 104 (as proposed), 105 and even 150 are meaningless.

SSM is also flawed in this specific case because of the particular statistical approach used in the initial 1986 criteria. While AMSA would argue that the data were flawed, the geometric mean standards for the 1986 criteria were at least developed from actual data. The proposed SSM values were based only on statistical assumptions of log probability distribution and an arbitrarily selected "confidence limit". As stated in the original 1986 criteria relative to this confidence interval, "[t]o set the single sample maximum, it is necessary to specify the desired chance that the beach will be left open when the protection is adequate. This chance, or confidence level, was based on Agency judgment" (January 1986; page 9). Using a control chart analogy and the actual log standard deviations from the 1970 studies, SSM for various confidence levels were calculated. The result was to select the 75% confidence interval around a geometric mean. The statistical analysis was based on the assumption that this data set had a log normal distribution. Following the selection of this confidence level, EPA again cautioned that the development and listing of the SSMs for this specific data set "should be recalculated for individual areas if significant differences in log standard deviations occur."

B. AMSA's Recommended Approach

The BEACH Act requires EPA to promulgate criteria that are "as protective of human health as" the 1986 criteria. The interpretation of the SSM is critical to demonstrating whether the criteria are in fact "as protective." As stated above, the 1986 criteria document does not interpret the term "single sample maximum," discusses SSMs solely in the context of beach closures, and states that "in deciding whether a beach should be left open, it is the long term geometric mean bacterial

density that is of interest. Because of day-to-day fluctuations around this mean, a decision based on a single sample (or even several samples) may be erroneous, i.e., the [single] sample may exceed the recommended mean criteria even though the long-term geometric mean is protective, or may fall below the maximum even if this mean is in the nonprotective range" (January 1986; page 9).

The May 2002 draft bacteria implementation guidance (page 5) further indicates that "[i]n terms of criteria setting, the targeted level of protection is the illness rate, *and the most direct relationship between measurements of bacterial levels and illness rate is the geometric mean of measurements taken over the course of a recreation season.*" This is consistent with the proposal's preamble statement at 41725 that "the geometric mean has the most direct relationship to the illness rate." Therefore, as EPA goes on to say in the preamble, "EPA could interpret the phrase 'as protective of health as' the 1986 bacteria criteria document *to apply only to the geometric mean.*" AMSA believes this is the most reasonable interpretation and recommends that EPA only promulgate the geometric mean in the final rule, leaving the SSM available for use as an implementation tool for making beach opening and closure decisions only.

C. *Alternative Limited Application Approaches*

EPA's May 2002 draft bacteria implementation guidance (page 46) recommends that states use only the geometric mean component for National Pollutant Discharge Elimination System (NPDES) water quality-based effluent limits. AMSA strongly recommends that the regulatory text, if EPA insists that it include the SSM in the criteria, be modified to plainly state that the SSM is to be used only for making beach closure and opening decisions as originally intended in the 1986 criteria document, and not for assessing attainment of standards, developing total maximum daily loads (TMDL)s or developing NPDES permit limits.

Alternatively, if EPA will not clearly limit use of the SSM to beach opening/closing decisions, AMSA recommends that EPA modify the proposed regulatory text to state that the SSM shall not be exceeded only when there is insufficient data to determine that the geometric mean criterion is being met. A sufficient number of samples for comparison with the geometric mean criterion provide an indication of swimming-associated health risks superior to reliance on single values from single samples. Where a statistically sufficient number of samples is available (at least five tests evenly spaced over thirty days, according to EPA), application of the geometric mean criterion is as protective as application of a SSM criterion set equal to a confidence limit where such a data set does not exist. The SSM is a surrogate for the geometric mean in the absence of a suitably large data set to protect against the risk of exceeding the geometric mean. Therefore, in the presence of a suitably large data set, reliance upon the geometric mean criteria from the 1986 bacteria criteria document completely satisfies the "as protective as" test.

IV. *Application in CSO-Receiving Waters*

AMSA also recommends that EPA clarify the applicability of the final rule in combined sewer overflow (CSO) impacted waters. Implementation of water quality standards for CSO-impacted waters is covered by the Wet Weather Water Quality Act of 2000 (CWA Section 402(q) and the

1994 CSO Policy). Based on the provisions of that law we recommend the following language be included in the rule:

“For CSO impacted waters, compliance with these water quality standards shall be assessed following implementation of an approved long term control plan in accordance with the *CSO Control Policy*”.

V. *New Discharges*

EPA’s proposal limits the use of compliance schedules to “existing pathogen dischargers.” Given that EPA often encourages CSO communities to relocate CSO outfalls in the context of long-term control plan (LTCP) implementation, AMSA requests that EPA clarify in the final rule that the definition of “new pathogen discharger” does not apply to relocated CSO outfalls.

VI. *EPA’s Economic Analysis Fails to Assess Key Cost Considerations*

EPA’s economic analysis for the proposed rule assumes EPA will promulgate the geometric mean. However, the real cost associated with this rulemaking will be affected by the final interpretation of the term “single sample maximum.” If EPA applies the SSM as a never to exceed value, virtually any waterbody with a measurable amount of urban runoff, not to mention a CSO-impacted waterbody, will not be able to fully attain the criteria. AMSA believes that if EPA applies the SSM as a never to exceed value, the Agency must redo its economic analysis accordingly and re-propose the criteria.

EPA’s existing economic analysis is problematic because it does not directly estimate the costs associated with the control of municipal separate storm sewer systems (MS4), CSOs, and sanitary sewer overflows (SSOs). EPA indicates that “these sources are difficult to model and evaluate with respect to potential costs impacts.” EPA does, however, address these discharges in “existing and anticipated regulations and policies, and has tallied potential control costs as a part of analyses for these actions” in the proposed rule.

EPA’s economic analysis primarily evaluated the ability of wastewater treatment plant effluent to comply with the new standards, specifically the geometric mean. EPA indicates that chlorination processes can be upgraded or adjusted to produce the levels of bacteria necessary for compliance with the proposed rule. AMSA’s members have indicated, for the most part, that for a full secondary treatment plant, EPA’s characterization, that disinfection process optimization should be sufficient, is accurate. However, plants that are not at full secondary, for example wet weather treatment facilities at CSO outfalls, may have more difficulty meeting the new standards. The costs associated with bringing these facilities into compliance with EPA’s final standards should be considered.

A. *Implications for CSO Communities*

A closer examination of the supporting document, *Economic Analysis for Proposed Water Quality Standards for Coastal Waters* (June 2004), reveals that, with respect to CSOs, EPA has “accounted for the potential costs of these controls in its report to Congress” on CSOs in 2001. The stated

national CSO needs figure of \$44.7 billion was based on the 1996 Clean Watersheds Needs Survey Report to Congress – *Assessment of Needs for Publicly Owned Wastewater Treatment Facilities, Correction of Combined Sewer Overflows, and Management of Storm Water and Nonpoint Source Pollution in the United States*. The Report to Congress and the underlying needs survey, however, did not take into consideration EPA’s proposed narrow interpretation of the SSM. There is no evidence that the standard to which CSOs were held in these needs estimates (the equivalent of primary clarification and disinfection) would ensure compliance with a SSM for bacteria.

In fact, preliminary estimates by one AMSA member in the Great Lakes region indicate that CSO construction to support the SSM criteria will increase costs by approximately 60%, or nearly a billion dollars, without considering O&M costs. Thus, this regulation would result in an annual capital expenditure by just *one* Great Lakes discharger of more than the proposal’s \$7,000,000 estimate for *all* Great Lakes dischargers.

Should EPA adopt the SSM as a never to be exceeded water quality standard, CSO communities would have no choice but to eliminate all overflows to meet the standard. During the CSO LTCP development process, most wastewater treatment agencies evaluate the costs associated with achieving zero overflows (i.e., sewer separation) as compared to the cost of achieving 4-6 overflows per year. AMSA informally polled its CSO members to assist in preparing these comments, and found that the costs to achieve zero overflows for many communities were staggering when compared to their existing plans geared to some remaining overflows:

- Midwest – A large discharger (greater than 100 MGD) estimates its costs would climb from \$3.8 billion to \$20 billion if forced to achieve full separation.
- Northeast –
 - A large discharger (greater than 100 MGD) estimates its current cost estimate would increase by \$3 to \$5 billion, if complete elimination of overflows was required.
 - A medium-sized discharger (less than 20 MGD) estimated a nearly six-fold increase in cost from \$42.5 million to \$250 million to achieve full separation.

We do not believe that EPA would intend to impose such dramatic costs on public agencies, and are confident that this result is inconsistent with Congress’ intent in endorsing the process for CSO communities outlined in the *CSO Policy*. Achieving zero overflows through sewer separation will only ensure that CSOs are no longer contributing to the problem. In the end, the waterbody will still not be able to meet the “never to exceed SSM” standard due to stormwater impacts, which will be exacerbated by sewer separation.

B. *Additional Cost Considerations*

- The model used to develop the SSO needs is based on reducing wet weather overflows within a collection system to one every five years, but again, the SSM criteria has not been considered.

- The proposed regulation makes no provision for suspending the SSM requirement for extreme climatic events. Therefore, the model used by EPA to develop costs virtually guarantees that there will be violations.
 - In a large collection system, five year return storms will not occur across the entire system *at the same time*, or even in the same year. Therefore, the events presupposed in the model will actually result in multiple occurrences in one watershed.
- In reference to total maximum daily loads (TMDLs), and state impaired water listings, the Economic Analysis document states:

There is no data to indicate that changing the bacterial indicator for coastal recreation waters from fecal coliform to *E. coli* and enterococci would result in any additional waters listed as impaired by pathogens, or in additional controls on sources to coastal recreation waters already listed as impaired by pathogens.

While this statement may be true, the document presents no evidence that the converse is not equally true.

- Based on several years of voluntary enterococcus monitoring at one AMSA member facility (approximate average daily flow of 400 million gallons per day), sodium hypochlorite dosage would need to increase by approximately 15% in order to meet the geometric mean enterococcus limit of 35 col/100 mL. This increase in total chlorine residual concentration after disinfection, even with subsequent dechlorination, may result in increased toxicity to marine organisms, difficulties in meeting existing toxicity limits, and increases disinfection/dechlorination operating costs over \$200,000 per year.
- In Appendix D of EPA's Economic Analysis the following statement appears regarding energy use:

Increasing chemical (chlorine) dose: Involves allowing more chemical to flow through the pipes from pressurized vessels, or by gravity for liquid chlorine applications. EPA estimates that there is no incremental increase in energy use associated with this activity.

The procedures described here are not used because they are impractical, imprecise, and dangerous. In fact, liquid chlorine (which we presume to mean sodium hypochlorite) is fed using metering pumps so that disinfection can be matched to the conditions, particularly flow, present at the time. In order to avoid the fatalities that could result from trying to directly diffuse gaseous chlorine into the effluent stream, a solution of water and chlorine is first prepared under controlled conditions. This solution is then mixed with the effluent. In either case, an increase in applied dose *will* result in increased pumping and therefore increased energy costs.

AMSA Comments on BEACH Act Proposal

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Thank you for considering our comments on this matter. If you should have any questions, please do not hesitate to contact Chris Hornback, AMSA's Director of Regulatory Affairs, at 202/833-9106.

Sincerely,

A handwritten signature in black ink, appearing to read "K Kirk". The "K" is large and stylized, with a vertical line extending downwards. The "Kirk" is written in a cursive, flowing script.

Ken Kirk
Executive Director

PROOF OF SERVICE

I, Aaron Colangelo, hereby certify that I caused a true and correct copy of Plaintiff's Response to NACWA's Motion to Intervene via Hand Delivery to:

U.S. District Court for the Central District of California
Western Division
312 N. Spring St., Rm G-8
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I also served a copy of the above-referenced document via First-class mail to the following counsel of record:

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