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ATTN: Docket # 01-08-01/55
Office of Legal Affairs
New Jersey Department of Environmental Protection
P.O. Box 402
Trenton, NJ 08625-0402

May 16, 2008

RE: Docket # 01-08-01/55, Proposal # PRN 2008-60; New Jersey Pollutant Discharge Elimination System (NJPDES) Proposed Readoption with Amendments: N.J.A.C. 7:14A.

VIA REGULAR MAIL

Dear Ms. Previte:

Clean Ocean Action (COA) is a regional, broad-based coalition of 125 conservation, environmental, fishing, boating, diving, student, surfing, women's, business, service, and community groups with a mission to improve the degraded water quality of the marine waters of the New Jersey/New York coast. These comments are in response to the New Jersey Pollutant Discharge Elimination System (NJPDES) Proposed Readoption with Amendments: N.J.A.C. 7:14A.COA consistently submits comments on draft NJPDES permits for all ocean dischargers and is actively engaged in efforts to improve the aquatic environment surrounding the outfalls. We are very concerned about several of the proposed changes to NJPDES rules, and their impact on water quality and the health of marine organisms that come in contact with effluent discharged by the fourteen (14) permitted ocean dischargers along the New Jersey shoreline. Some of these concerns include proposed changes whole effluent toxicity (WET) testing, and chlorine producing oxidants (CPO). We have additional concerns about the changes to the solid waste definition and the newly proposed Reclaimed Water for Beneficial Reuse (RWBR) section of the rulemaking. Please find a detailed list of our issues below.

I. <u>Reclaimed Water for Beneficial Reuse</u>

A. **Proposed new N.J.A.C. 7:14A-2.15(a)** "*…requires persons that produce or propose to produce RWBR to refer to the Department's Technical Manual for Reclaimed Water for Beneficial Reuse (RWBR Technical Manual or Manual) and comply with the Manual's limitations and conditions in their NJPDES permits*."

1. To adequately protect human health and the environment, the proposed rules must include the minimum effluent limitations and conditions for both of the

2. reuse categories, Public Access and Restricted Access. It is inappropriate and insufficient to simply refer to the limitations and conditions listed in the RWBR Technical Manual. The limitations and conditions must have the binding legal effect of regulations. In addition, this will ensure that changes to the limitations and conditions are subject to due process, including public notice and comment.

3. The RWBR Technical Manual does not contain any limitations or conditions for several important contaminants, including:
   a) Metals and Toxic Chemicals (including emerging contaminants):

      The RWBR Technical Manual states *"The minimum guidelines for treatment of metals and toxic chemicals established in the USEPA's Guidelines for Water Reuse (EPA/625/R-04/108) to protect human health and the environment are to be achieved by NJPDES permitted facilities that are authorized for RWBR applications. Copies of the past five years of priority pollutant scans completed by the facility are to be submitted as part of the RWBR approval process."*[1]

      (1) The United States Environmental Protection Agency's Guidelines for Water Reuse ("USEPA Guidelines") do not provide any specific guidelines for metals or toxic chemicals, except to state:

      "Monitoring should include inorganic and organic compounds, or classes of compounds, that are known or suspected to be toxic, carcinogenic, teratogenic, or mutagenic..."[2]

      (2) The USEPA Guidelines do acknowledge the need for monitoring and treatment requirement for metals and toxic chemicals:

      "As wastewater effluent is considered a source for more and more uses, such as industrial process water or even potable supply water, the treatment focus has expanded beyond secondary treatment and disinfection to include treatment for other containments such as metals, dissolved solids, and emerging contaminants (such as pharmaceutical residue and endocrine disruptors)."[3]

      (3) USEPA also provide information on monitoring and treatment methods currently available to reduce or eliminate some of these contaminants prior to reuse.

      "The specific endocrine-disrupting chemicals in reclaimed water can be quantified using modern analytical methods. As indicated previously, the compounds most likely to be responsible for feminization of fish include

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[1] New Jersey Reclaimed Water for Beneficial Use Manual, NJDEP Technical Manual, Jan 2005, http://www.state.nj.us/dep/dwq/techmans/reuseman.pdf
[2] USEPA Guideline for Reuse, EPA/625/R-04/108, Sept. 2004, Table 4.13 http://www.epa.gov/nrmrl/pubs/625r04108/625r04108.pdf
[3] USEPA Guideline for Reuse, EPA/625/R-04/108, Sept. 2004, Section 3.3.2.1, pg. 87 http://www.epa.gov/nrmrl/pubs/625r04108/625r04108.pdf

steroid hormones (e.g., 17b-estradiol and ethinyl estradiol) and detergents metabolites (e.g., nonylphenol and alkylphenol polyethoxylates).”[4]

“Available data suggest that nitrification/denitrification and filtration can reduce the concentrations of hormones and detergent metabolites while reverse osmosis lowers concentrations to levels that are unlikely to cause endocrine disruption (Huang and Sedlak, 2001 and Fujita et al., 1996).“[5]

(4) United States Geological Survey (USGS) tested soil irrigated with reclaimed wastewater for nineteen (19) pharmaceuticals and found several, including erythromycin (an antibiotic), carbamazepine (a drug used to prevent and control seizures), fluoxetine (an antidepressant), and diphenhydramine (a common non-prescription antihistamine). They also found an increase in concentration during the study, suggesting retention and absorbtion of pharmaceuticals in soils[6]

(5) New Jersey would not be the first to propose monitoring and treatment requirements for heavy metals and emerging contaminants. The California Department of Public Health has recently proposed new guidelines for reuse of wastewater for groundwater recharge that require providers to *“monitor the recycled water for pharmaceuticals, endocrine disrupting chemicals, and other indicators of the presence of municipal wastewater as specified by the Department“*[7]

b) Chlorine Producing Oxidants:

The RWBR Technical Manual includes minimum concentration limits for chlorine, but no maximum limits on the concentration of chlorine producing oxidants (CPO) in effluent for any beneficial reuse category.

(1) CPOs are toxic to plants and aquatic organisms at very low concentrations (see additional toxicity information below in Section V) and the USEPA Guideline’s recommend dechlorinating the effluent prior to reuse when flora or fauna will be exposed.

(2) The need for a CPO limit is supported by USEPA’s Guidelines, which raises specific concerns about the levels of CPO in reclaimed wastewater:

“For example, the extremely potent carcinogen, N-nitrosodimethylamine (NDMA) is present in sewage and is produced when municipal wastewater effluent is disinfected with chlorine or chloramines (Mitch et al, 2003). In some situations, the concentration of NDMA present in reclaimed water

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[4] USEPA Guideline for Reuse, EPA/625/R-04/108, Sept. 2004, Section 3.4.1.8, pg. 105 http://www.epa.gov/nrmrl/pubs/625r04108/625r04108.pdf

[5] Guideline for Reuse. USEPA Sept. 2004, Section 3.4.1.8, pg. 105 http://www.epa.gov/nrmrl/pubs/625r04108/625r04108.pdf

[6] Kinney, C.A., Furlong, E.T., Werner, S.L., and Cahill, J.D., 2006, Presence and distribution of wastewater-derived pharmaceuticals in soil irrigated with reclaimed water: Environmental Toxicology and Chemistry, v. 25, no. 2, p. 317-326, doi: 10.1897/05-187R.1.

[7] Draft California Code of Regulations 22 CCR § 60320.047(a)(3)

exceeds action levels set for the protection of human health, even after reverse osmosis treatment."[8]

B. **Proposed new N.J.A.C. 7:14A-2.15(a) 2(c)** "*Each reuse feasibility study submitted to the Department under (b) above shall be conducted in accordance with the Department's Technical Manual for Reclaimed Water for Beneficial Reuse, and shall be signed and sealed by a professional engineer licensed in the State of New Jersey*."

The RWBR Technical Manual's guidelines for preparation of Reuse Feasibility Studies for Wastewater Treatment Facilities must be amended to include a requirement that the facility's submit their last five (5) years of effluent monitoring data for comparison with relevant limitations/conditions of the requested reuse. Simply reviewing five (5) years worth of priority pollutant scans from the wastewater facility is not sufficient to characterize the potential contaminants in the effluent stream or identify additional treatment that may be necessary.

In conclusion, the proposed RWBR rules must be amended to include a list of specific limitations and conditions , as opposed to being listed in the RWBR Technical Manual, there must also be additional limitations and conditions in the rules for metals and toxic chemicals, including emerging contaminants and CPOs, and the Reuse Feasibility Studies must include facility specific effluent monitoring data.

II. Sample Integrity

N.J.A.C. 7:14A-4.4: COA discovered some serious discrepancies between required sampling methods for some volatile compounds found in the NJPDES regulations, as compared to USEPA methods and Clean Water Act (CWA) regulations, that the Department needs to resolve during this rulemaking opportunity. In order to ensure that volatile organics are being sampled in a way that will maintain sample integrity and provide accurate results, we strongly encourage the Department to review USEPA's list of volatile organic compounds.[9] Assigning the proper sample collection techniques are a source of confusion even within the CWA, which allows 24-hr composite samples for certain toxins, such as PAHs, PCBs, and mercury, but restricts volatile organics (which includes some of these toxins) from being composited. We also recommend the Department review current sampling requirements to ensure sample integrity will not be compromised for any analytes.

N.J.A.C. 7:14A-4.4(b)2.ii. provides an example of our above expressed concerns. The current NJPDES regulations allow a 24-hour composite sample for ammonia, mercury, and other toxins (including some that are volatile but are not included in the Volatiles list in **N.J.A.C. 7:14A-4, App. A, Tables II**). In fact, the utilization of this sampling method may compromise the integrity of the sample results. Approved USEPA methods for analyzing ammonia require that *"[s]amples must be preserved with H_2SO_4 to a pH <2 and cooled to 4°C at the time of collection. Samples should be analyzed as soon as*

[8] USEPA Guideline for Reuse, EPA/625/R-04/108, Sept. 2004, Section 3.4.1.7, pg. 104 http://www.epa.gov/nrmrl/pubs/625r04108/625r04108.pdf

[9] US EPA's list of volatile organic compounds can be found at http://iaspub.epa.gov/srs/srs_proc_qry.navigate?p_list_option_cd=GROUPLIST&P_SUB_ID=761346

possible after collection .”[10] **Thus, allowing a 24-hour composite sample is not appropriate for ammonia**. And according to 40 CFR 136, App. A, Table II, n.2, *“[i]f a composite measurement is required but a composite sample would compromise sample integrity, individual grab samples must be collected at prescribed time intervals (e.g., 4 samples over the course of a day, at 6-hour intervals).”*

Therefore, N.J.A.C. 7:14A-4.4(b)2.ii. needs to be amended to clarify that in order to obtain a 24-hour composite sample according to the CWA, four (4) samples must be collected and analyzed over a 24-hour period. This particular example supports the need for the Departement to thoroughly reviewed all required sampling methods for other volatile compounds found in the NJPDES regulations and compared to USEPA methods.

III. Acute whole effluent toxicity (WET) limits

Proposed rule change to N.J.A.C. **7:14A-5.3(a) and 13.18(f)** *“The Department has determined to delete the acute WET effluent standard of an LC50 ≥ 50 percent at N.J.A.C. 7:14A-5.3(a),…and instead adopt the LC50 ≥ 50 percent as an action level at proposed new N.J.A.C. 7:14A-13.18(f).”*

This change is in clear violation of the Antibacksliding Rule at N.J.A.C. **7:14A-13.19.** That rule states, under subsection (a), that *"[e]xcept as provided for under Section 402(o) of the Federal Act (33 U.S.C. § 1342(o)), when a permit is modified, renewed or reissued, all effluent **limitations** or standards shall be at least as stringent as the final and effective effluent **limitations** or standards in the previous permit."* (Emphasis added)

Proposed N.J.A.C. **7:14A-13.18(f)1i and ii** will allow for the **elimination** of effluent limitations when a permit is modified, renewed, or reissued. An ***action level*** of LC50≥50 percent is clearly not as stringent as an effluent ***limitation*** of LC50≥50 percent and in fact, changing to an action level would eliminate the limitation altogether.

Similarly, this proposed rule change is in direct violation of the federal law at 33 U.S.C. 1342(o).

Therefore, in order to avoid violating state and federal law, the *limitation* for acute WET of LC50≥50 percent must remain.

IV. Bacteria Monitoring

Proposed rule changes in N.J.A.C. 7:14A-6.5… were said to be *“a result of significant changes to the Department’s Surface Water Quality Criteria for bacterial indicators and their application (38 N.J.R. 4449(a), October 16, 2006), and USEPA’s adoption of new methods in 40 CFR Part 136 for bacterial indicators (72 FR 11212, March 17, 2007).”*

”*The recent amendments to the Surface Water Quality Standards, N.J.A.C. 7:9B, include the deletion of fecal coliform criteria for waters designated ‘FW2,’ ‘SE1’ and ‘SC,’ the deletion of enterococcus criteria for waters designated ‘FW2,’ the addition of an E. coli criteria for "FW2" waters, and clarification that the geometric mean values (not the single sample*

[10] EPA 1993. Method 350.1 Determination of Ammonia Nitrogen by Semi-Automated Colorimetry. Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, OH. P. 350.1-6
Determination of Ammonia Nitrogen by Semi-Automated Colorimetry *Revision 2.0* (PDF)

maximum value) will be used to assess water quality, to develop total maximum daily loads (TMDLs) and to regulate wastewater discharges. USEPA recently adopted new methods in 40 CFR Part 136 for enterococci and E. coli in wastewater."

As proposed, the rule change is not consistent with the current regulations, as it seeks to **maintain** limitations for fecal coliforms and the ***"monitor only"*** requirement for enterococci, instead of proposing to adopt the new state Surface Water Quality Standards (SWQS) as the limitation for enterococci. The Department's original decision to require monitoring only for enterococci was said to be in response to permittee's concerns over *"enterococcus methods, including single sample variability and false positives."* But the Department determined all of these concerns were addressed with the adoption of both the SWQS and availability of approved USEPA methods. In fact, the USEPA has stated since 1986 that fecal coliforms are not appropriate indicators and should be replaced by enterococci in marine waters and *E. coli* in fresh waters, because fecal coliforms are not correlated with health effects. It is therefore no longer reasonable to continue to utilize an outdated and inappropriate bacterial indicator (fecal coliforms) as the sole limit for bacteria in wastewater effluent. In addition, without an enterococcus limitation in NJPDES permits, the Department will not be able to *"develop total maximum daily loads (TMDLs) and to regulate wastewater discharges"* in accordance with SWQ Criteria.

1. The Department must eliminate the *"monitor only"* status for Enterococci and replace it with *"limitations"* based on the new **Surface Water Quality Standards (N.J.A.C. 7:9B)** for bacteria. The Department must convert to the appropriate bacterial indicators, so as not to put the environment or the public at risk.

   COA would like to emphasize that it is the NJPDES permittee's responsibility to meet the SWQS for both bacteria and chlorine producing oxidants (CPOs), even if the effluent has to be dechlorinated prior to discharge or an alternative disinfection method has to be utilized that doesn't produce toxic chlorine residuals.

2. For the NJPDES rules to become consistent with the new **Surface Water Quality Standards, N.J.A.C. 7:9B.** Changes need to be made to the following sections:

   a) N.J.A.C. **7:14A-4.4(b)3.v**: *"fecal coliform"* must be replaced with the term *"bacterial indicator."*

   b) Fecal coliforms, *E. coli*, and enterococci are all indicators of fecal contamination and associated pathogenic organisms. These indicators are commonly found in sewage and are <u>not</u> necessarily pathogenic. Therefore, N.J.A.C. **7:14A-6.5(b)2.ii.** should be written as follows (additions <u>bold and underlined</u> and deletions excluded):

      Bacterial monitoring shall not be required for facilities which do not receive wastewater containing pathogenic organisms, including fecal coliform, <u>E. coli</u> or enterococci organisms, unless otherwise required by the Department.

c) N.J.A.C. **7:14A-12.5 (Disinfection)** needs to be amended to include effluent standards for *E. coli* and enterococci in order to comply with the state SWQS.

d) N.J.A.C. **7:14A-12.5(a)** must be reworded to include the new indicator for fresh water, *"E. coli",* as follows:

All wastewater that could contain pathogenic organisms such as fecal coliforms, E. coli, and/or enterococci shall be subject to continuous year round disinfection prior to discharge into surface waters.

e) N.J.A.C. **7:14A-12.5(b)** must be amended to include the following:

1) The State effluent standard for *E. coli* is as follows:

The monthly geometric mean shall not exceed 126 colonies/100 mL; and

The weekly geometric mean shall not exceed 235 colonies/100 mL

2) The State effluent standard for enterococci is as follows:

The monthly geometric mean shall not exceed 35 colonies/100 mL; and

The weekly geometric mean shall not exceed 104 colonies/100 mL

3. We urge the Department to investigate the use of rapid methods for the detection of Enterococci, thus enabling facilities to identify and resolve problems with disinfection systems in a timely manner.

In conclusion, the Department must eliminate the *"monitor only"* status for Enterococci and replace it with *"limitations"* based on the new Surface Water Quality Standards (N.J.A.C. 7:9B) for bacteria, update language in N.J.A.C. 7:14A to be consistent with SWQS for bacteria and investigate the utilization of rapid testing methods.

V. Chlorine Producing Oxidants (CPO)

Proposed new rule N.J.A.C. 7:14A-13.6(b) Calculation of water quality based limitations *"allows for the use of a chlorine produced oxidant (CPO) demand adjustment when determining water quality based effluent limitations for CPO in discharge to surface water permits. However, use of the demand adjustment may only be applied within the approved regulatory mixing zone.*" (Emphasis added)

CPO is highly toxic to marine organisms even at very low concentrations, resulting in both acute and chronic effects. The silverside (*Menidia menidia*), a fish that is present in New Jersey marine waters, is considered one of the most sensitive marine/estuarine species (96-hour LC_{50} 0.040 mg/L).[11] CPO has been found to reduce filtration and reproduction in rotifers, lobsters and fish.[12] In fish, CPO can affect the transport of oxygen in blood by reacting with the hemoglobin of the red blood cells to form methemoglobin, inhibiting the cell's ability to bind oxygen.[13] As CPO concentrations are increased, severe hemorrhaging occurs throughout the body and from the fins. In addition, the body of the fish becomes

[11] Bender *et al.*, 1977
[12] Capuzzo *et al.*, 1976, 1977; Capuzzo, 1977, 1979a
[13] Buckley, 1976

covered with a mucous coating, and the fish shows increased "coughing" and erratic swimming[14].

Clean Ocean Action has consistently objected to the use of mixing zones in the development of WQBELs because of the harm mixing zones present to marine life. This is never more apparent than for CPO, as chlorine residual can be acutely toxic within minutes of exposure to fish and other aquatic life. This concept is supported by a recent proposal by the state of California to prohibit mixing zones for chlorine residuals, because CPOs are *"acutely toxic to aquatic life"* and *"any amount of chlorine without neutralization prior to discharge into surface waters, bays and estuaries may increase the potential of downstream fish kills and harm to aquatic biota."* California is requiring chlorine residual objectives to be met at the end-of-pipe[15] **COA urges the Department to reject the use of mixing zones for chlorine and require ocean dischargers to meet SWQS for CPO at the end-of-the-pipe.**

A. **SWQC N.J.A.C. 7:9B-1.5(h)1.** provides very specific requirements that must be met in order for the allowance of mixing zones, including

> ***v.*** *"Regulatory mixing zones shall be established to assure that significant mortality does not occur to free swimming or drifting organisms;*" and *(1) In individual regulatory mixing zones, discharges which meet acute effluent toxicity of LC[50] >= 50 percent shall be deemed to comply with this requirement."* and *ix.* "*The regulatory mixing zone shall not inhibit or impede the passage of aquatic biota*."

In accordance with **N.J.A.C. 7:14A-13.16(a)6,** the Department has allowed NJPDES permittee's that discharge into the Atlantic Ocean to collect effluent samples for whole effluent toxicity (WET) testing at a location **prior to chlorination**. Therefore, these permittee's cannot use these acute effluent toxicity result of LC[50] >= 50 to "*assure that significant mortality does not occur to free swimming or drifting organisms*" from exposure to CPO. Therefore, COA requests the following information regarding all ocean dischargers that currently utilize a mixing zone for CPO:

1. What, if any, bioassays or other relevant organismal-based studies, have these ocean dischargers conducted to make the determination that their mixing zone for CPO does not cause significant mortality to free swimming or drifting organisms?

2. What, if any, end-of-pipe studies, have these ocean dischargers conducted to make the determination that their mixing zone for CPO does not inhibit or impede the passage of aquatic biota?

3. The proposed allowance for the use of a CPO Demand Factor will substantially increase the allowable concentration of acutely toxic CPO in effluent at the point of discharge and throughout the regulatory mixing zone. In fact, the CPO Demand

[14] Grothe and Eaton, 1975; Buckley, 1977; Travis and Heath, 1981

[15] Proposed Total Residual Chlorine and Chlorine-Produced Oxidants Policy of California DIVISION OF WATER QUALITY, STATE WATER RESOURCES CONTROL BOARD, CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY, May 2005

Factor currently accepted by the Department and included in NJPDES permits of members of the New Jersey Coastal Group Facilities is **90.9%**.

The Department must require dischargers that want to utilize a CPO Demand Factor, to first conduct bioassays or other relevant organismal-based studies on the actual end-of-pipe effluent, in order to assure no significant mortality to free swimming or drifting organisms is occurring?

4. Some fish species have been shown to avoid areas with detectable CPO concentrations.[16] Thus, Department must also require dischargers that want to utilize a CPO Demand Factor to first determine whether the resulting elevated CPO concentrations within the mixing zone will not inhibit or impede the passage of aquatic biota.

B. The two studies cited by the Department as support for the proposed allowance of a CPO Demand adjustment when determining water quality based effluent limitations for CPO are inappropriate and insufficient. CPO Demand is not only a function of CPO concentration and time, but also water temperature, pH, turbidity, organic content and ammonia concentrations, of the receiving water[17]. In proposing this new rule, the Department cited two studies, a CPO Demand Study[18] conducted by the New Jersey Coastal Group Facilities (made up exclusively of WWTF operators that discharge into the Atlantic Ocean) and a study conducted by the New York State Department of Environmental Conservation (NYSDEC). The NYSDEC study was limited to discharges into freshwater streams, which represents ambient conditions that are substantially different than marine waters. The New Jersey Coastal Group Facilities' CPO Demand Study, consisted almost exclusively of samples collected during periods of relatively high ocean temperatures (when CPO Demand is at its maximum), with the exception of two sample dates in November. No sampling was conducted from December through April, when ocean water temperatures are at their lowest and CPO Demand rates have been shown to be substantially lower compared to summer months.[19] It is also not clear from the Final Report of the CPO Demand Study[20] whether laboratory tests were actually conducted at ambient ocean temperatures, or whether data such as pH, turbidity, and organic content were taken into account. All of these factors will impact the rate of CPO demand. The CPO Demand Factor equations generated by this study (and accepted for use by the Department) do not include any of these important variables.

In addition, the CPO Demand Study did not appear to include any biological data to support the theory that CPO demand will eliminate toxicity of CPO. There is a proven synergistic effect between CPO toxicity and temperature, i.e. with increasing

[16] Fava and Tsai, 1978; Cherry *et al.*, 1979; Hidaka and Tatsukawa, 1985
[17] Heinemann *et al.*, 1983; Abdel-Gawad and Bewtra, 1988; Milne, 1991
[18] Evaluation of Chlorine Demand in Coastal Waters of New Jersey, Final Report" Prepared for New Jersey Coastal Group Facilities, Prepared by Hall & Assoc. Dec. 2002.
[19] Wisz *et al.* (1978)
[20] Evaluation of Chlorine Demand in Coastal Waters of New Jersey, Final Report" Prepared for New Jersey Coastal Group Facilities, Prepared by Hall & Assoc. Dec. 2002.

temperatures, the concentration of CPO that causes significant mortality rates in marine fish goes down.[21] So, although warm water temperatures may reduce the concentration of CPO in the water, the exposed marine organisms are more susceptable to the toxic effects of CPO. Without biological studies on the impacts of different CPO concentrations during different times of the year, it is impossible to determine whether the increased CPO Demand rates during summer months (as reported by the New Jersey Coastal Group Facilities) will be enough to eliminate the substantial metabolic impacts of high temperature and CPO exposure to aquatic organisms within the mixing zone.

For all of the reasons listed above, and considering the significant toxicity of CPOs to aquatic organisms, the Department's decision to allow ocean discharger to utilize a CPO Demand Factors is inappropriate and insufficient.

VI. Additional Monitoring Parameters

The Department must amend **N.J.A.C. 7:14A-4 App. A Tables II and IV, 7:14A-12**, and any other relevant sections to include monitoring requirements for dissolved oxygen, total nitrogen (for marine waters), and Emerging Contaminants (including pharmaceuticals and endocrine disruptors such as Polybrominated diphenylethers, PBDEs) in these new rules.

A. Dissolved oxygen is currently the only parameter used for assessing coastal water quality, and all of the New Jersey coast is listed as impaired due to low dissolved oxygen concentrations. While BOD, COD, and TSS provide information on their impact on oxygen concentrations, these parameters do not indicate the actual dissolved oxygen present in the wastewater.

   1. **N.J.A.C. 7:14A-12.2** should be amended to include a requirement that the effluent maintain a minimum dissolved oxygen concentration.

   2. The Department must also add D.O. to **N.J.A.C. 7:14A-12.3** where appropriate and amend **N.J.A.C. 7:14A-4.4(b)3.i.** to include dissolved oxygen at **Subsection 4.4(b)3.i.8.**

B. **N.J.A.C. 7:14A-12.12** should be amended to include a total nitrogen effluent standard for brackish and marine waters. Nitrogen is the primary limiting nutrient in marine waters. The discharge of nitrogen from wastewater treatment facilities (WWTFs) contributes to increased algal biomass and reduced dissolved oxygen concentrations due to the decay of associated organic matter. To address the impairment of New Jersey waters, it is necessary to identify the contribution of nitrogen to coastal waters by point sources.

C. Several Emerging Contaminants have been identified and shown to negatively impact or harm aquatic life. Emerging Contaminants include pharmaceutically active compounds (antibiotics, heart and pain medications, anti-depressants, illicit drugs, etc.) and endocrine disruptors (birth control pills and other hormone-based medications, pesticides, polybrominated diphenylethers (PBDE), phthalates, plasticizers, etc.). These chemicals may promote antibiotic resistance in pathogenic bacteria, impair the ability of organism to develop, function, and/or reproduce, increase the vulnerability of an organism to disease and environmental stress, and/or be fatal. Some emerging contaminants have also

[21] Capuzzo *et al.* (1977)

been shown to bioaccumulate in marine life, thus presenting an additional food-borne human health risk. USEPA considers the aquatic organisms to be most at risk of exposure to emerging contaminants.

USGS and USEPA scientists analyzed treated wastewater from 10 WWTPs and found 28 to 50 pharmaceuticals and emerging contaminants in the effluent. Commonly detected compounds included antimicrobial disinfectants (triclosan), antibiotics (sulfamethoxazole), musk fragrances (tonalide), antihistamines (diphenhydramine), and antiepileptic drugs (carbamazepine). WWTP are considered a significant source of emerging contaminants in the streams that were sampled.[22]

USGS and the Center for Disease Control (CDC) sampled pre-treated and treated effluent in a drinking water treatment plant in New Jersey whose receiving water included discharge of effluent from upstream municipal sewage-treatment plants. Forty (40) emerging contaminants were detected in one or more samples of stream water or untreated water supplies in the treatment plant; 34 were detected in more than 10 percent of these samples. Several of these compounds also were frequently detected in samples of treated water.[23]

The Clean Water Act at 33 U.S.C. 1251 (a)(2) and (3) *"provides for the protection and propagation of fish, shellfish, and wildlife"* and states *"that the discharge of toxic pollutants in toxic amounts be prohibited."* In addition, the CWA at § 1251(a)(6) requires that *"major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone and the oceans."*

N.J.A.C. 7:14A-12 Appendix B and C should be amended to include a monitoring and reporting requirement for some of the most critical emerging contaminants so the Department can begin to develop WQBELs and assess whether additional treatment of the effluent is required in the near future.

Considering, it has been over ten (10) years since New Jersey last promulgated new rules for the NJPDES program, it is imperative that the newly proposed rules incorporate these requirement for emerging contaminants, so we don't allow another ten (10) years to pass without knowing what is being discharged into New Jersey waterways from treated wastewater.

VII. Solid Waste Definition

Proposes N.J.A.C. 7:14A-1.2: new definition for "*Solid Waste*" will now include "*materials approved or categorically approved for beneficial reuse*", and "*dredged material*". COA has been actively engaged in finding environmentally sound uses for dredged material and New Jersey, and the Department of Environmental Protection's ("Department") Office of Sediment and Dredging Technology in particular, is committed

[22] Glassmeyer, S.T., Furlong, E.T., Kolpin, D.W., Cahill, J.D., Zaugg, S.D., Werner, S.L., Meyer, M.T., and Kryak, D.D., 2005, Transport of chemical and microbial compounds from known wastewater discharges – Potential for use as indicators of human fecal contamination: Environmental Science and Technology, v. 39, no. 14, p. 5157-5169, doi: 10.1021/es048120k.

[23] USGS webpage on Research Projects: Emerging Contaminants http://toxics.usgs.gov/regional/emc/water_treatment.html

to the concept of utilizing dredged material as a resource and have been instrumental in providing environmentally sound placement options for dredged material from channel maintenance and deepening operations in the NY/NJ Harbor, as well as many other dredging operations through out the state. It is not clear what the implications of reclassifying dredged material and beneficial reuse material as solid waste will be to these ongoing projects.

COA urges the Department to maintain the exclusion of "*materials approved or categorically approved for beneficial reuse*" and "*dredged material*" in the proposed definition of "solid waste" in order to avoid unforeseen repercussions for New Jersey's commitment to utilize dredged material as a resource.

The NJPDES Proposed Readoption with Amendments: N.J.A.C. 7:14A that will have significant negative affects on water quality. We request a written reply to the substantial issues raised in our comments.

Sincerely,

Cindy Zipf
Executive Director

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