

**NYSDEC Concerns Regarding Suggested Sub-Regional Plans for Dissolved Oxygen in the Arthur Kill and Hudson River/Upper Bay**

**January 14, 2011**

EPA , New Jersey and New York with funding from USEPA Region 2 and the Harbor Estuary Program have invested significant time, effort and funds to assess Dissolved Oxygen (DO) conditions in NY/NJ Harbor (Harbor). This work has been invaluable in helping to understand the nature and extent of existing DO conditions in the Harbor and how the two States can continue to work together to manage the discharge of both Carbon and Nitrogen in order to achieve Clean Water Act fishable goals for DO in the Harbor.

We are currently in the process of evaluating the proposed Sub-Regional plans and believe it is necessary to invest additional resources to complete the evaluation of the proposed Sub-Regional plans and to evaluate alternative plans. This additional analysis is warranted given the magnitude of the estimated cost of additional treatment for the Municipalities discharging to the Harbor.

The following concerns need to be addressed as we continue to develop the Sub-Regional Plans.

**New York State does not support the blanket concept of “no net increase” for our WWTPs. The applicability of a “no net increase” concept must be evaluated on a WWTP by WWTP basis for each Sub-region. For example:**

**Oakwood Beach STP**

Review of all material indicates that the discharge from the Oakwood Beach STP to Lower Bay does not have a measurable impact on DO deficits that are predicted in either the Arthur Kill or the Hudson River/ Upper Bay.

**Port Richmond STP**

It is unclear what impact an increase of Carbon or Nitrogen discharged from the Port Richmond STP would have on the Arthur Kill or Upper Bay.

The Sub-Regional plan that has been evaluated presumes that the Port Richmond STP would continue to operate at levels that existed in the Baseline Case with effluent concentrations of 8.8mg/l for TOC and 9.9 mg/l for TN. These concentrations are well below any other facility discharging to the Harbor and reflect a level of treatment more stringent than that suggested in the Low N run for the Hudson River/Upper Bay Sub-regional Plan.

### **Arthur Kill Sub-Regional Plan**

The proposed sub-regional plan for the Arthur Kill includes a requirement of LOT treatment for Carbon and Nitrogen from both CSOs and Stormwater.

The model indicates an improvement of 1.2 days of attainment based on application of LOT for Stormwater and CSOs.

Achieving LOT removals for the Nitrogen load from stormwater discharged to the Arthur Kill would reduce the load by approximately 200#s compared to a total load of approximately 8,500#s of Nitrogen that would still remain.

Achieving LOT removals for the Carbon load from stormwater discharged to the Arthur Kill would reduce the load by approximately 700#s compared to a total load of approximately 11,000#s of Carbon that would still remain.

Any decision on requiring additional Stormwater controls beyond current MS4 requirements should be delayed until the Beach Act Criteria for Pathogens is issued and a determination is made regarding the need to alter MS4 requirements to achieve the swimmable goal of the Clean Water Act for the Arthur Kill based on the new and/or revised criteria.

### **Hudson River/ Upper Bay Sub-Regional Plan**

The Sub-regional Plan proposes low level nitrogen reductions to address predicted contraventions of the NYS Marine DO Standard in Hudson River / Upper Bay in the vicinity of Manhattan. This area is subject to significant tidal movement and flow from the Hudson River; as such it is not an area where one would expect to find algal blooms that would significantly contribute to DO deficits. It has not been demonstrated to NYS's satisfaction that Nitrogen is the primary driver of DO problems in this area. New York would like to see a sensitivity analysis run to verify the impacts nitrogen is perceived to be having in this area of the Harbor.

It is suggested that the following loading scenario be evaluated:

NJ discharges and NY discharges (including Port Richmond) to the Hudson River and Upper Bay at projected 2045 flows at 15 mg/l of BOD and 94/95 concentrations of Nitrogen. In NY the projected 2045 flows are less than the design flows.

CSOs and Stormwater Carbon and Nitrogen loading would be the same as the "Revised Planned Improvement" Run.

The goal for evaluating this loading scenario is to understand what an allowable load to the system would be. Equitable allocation of the allowable load and establishment of seasonal allocations may then be possible.

Any Sub-regional plan for the Hudson must recognize the need to collect current data for Nitrogen from STPs as well as planning for a comprehensive ambient data collection effort to supplement the data collected in 1994/1995.

It will also be necessary to address the timing of any proposed revision to the existing water quality standard for DO in the Hudson River which would have to be coordinated with the Interstate Environmental Commission.

February 4, 2011

## NY/NJ Harbor Pathogens and Nutrients TMDL Studies

### New Jersey Response to “TMDL Plan”

The concept plan entitled “TMDL Plan” shared and discussed at the December 22, 2010 Oversight Meeting was presented as the most recent simulation of the upper limit of water quality improvement (toward attainment of standards consistent with the CWA) that can be attained given limits of technology. Based on the discussion, it was agreed that requiring LOT for CSO and SW in some management areas would result in *de minimus* or no improvement and should be deleted from the TMDL Plan. Further, the degree of C and N reduction needed in Hudson River/Upper Bay is still being explored, but is less than LOT for C and N. It was agreed that follow-up discussions regarding key assumptions were needed to further refine the plan. New Jersey made clear that it is essential to vet the revised assumptions with sectors of the public that have not been fully engaged in the process, but will be affected by the outcomes, prior to expending resources on additional simulations and formulating a revised proposed plan (for example, municipalities). New Jersey also stated that the “substantial and widespread economic and social impact” criterion for a UAA must be explored and factored into a revised TMDL plan prior to proposal.

New Jersey has consistently held that the pathogen and nutrient TMDLs must be considered concurrently because of the anticipated significant cost associated with treatment improvements and the multiple drivers for technology choices (C, N and pathogen reduction). New Jersey economists are analyzing the EPA guidance for assessing user cost burden and the cost information available to date to begin to define the economic impact in UAA terms and to define the additional information that would need to be obtained from the regulated community (dischargers and local government units) to complete the analysis. This would form the basis for a revised TMDL plan that will include the load reductions that are reasonable, the water quality improvement these reductions will achieve, the revised SWQS that align with achievable water quality improvement and a blueprint for permit actions that would implement the load reductions that are based in sound science and full consideration of economic impact. To be fully transparent, each of the significant milestones in reaching this objective must be vetted with the affected public. As stated above, this would start with airing the assumptions that drive the simulations. This would be followed by airing the results of a simulation that incorporates the agreed upon assumptions, which would define the water quality improvements that can be achieved, and the associated cost analysis for a UAA, which may require additional information to be provided by the regulated entities. The final preproposal vetting would be the strawman plan incorporating the UAA analysis of what can be attained in consideration of user cost burden.

Some specifics on the remaining significant issues with the draft TMDL Plan follow:

1. Water quality outcomes for DO with application of the proposed levels of treatment should be based on permitted flows.

Except for dischargers to Hudson River, LOT is called for at the STPs. The water quality outcomes attributed to the draft TMDL Plan are based on LOT concentrations and existing flows. Effluent limits set by applying LOT to existing flows would result in effluent limits that could not be met when flows are generated by authorized but as yet

unrealized connections, redevelopment or future development within the currently valid permits. Note: the permitted flows are consistent with the planned future flows in the adopted water quality management plans for the affected service areas. Where LOT is proposed, the water quality outcomes must assume flows consistent with currently valid permitted flow levels.

2. Water quality outcomes should reflect implementation of the TMDLs in the non-tidal Passaic and Raritan Rivers. New Jersey will provide the correct boundary assumptions for relevant parameters after vetting the options and their implications for upstream dischargers.

3. Assumptions regarding the reductions that can be realized from CSO and SW sources should be well within reasonable expectations and should reflect outcomes for the kinds of measures that could be employed in urban settings. To date, no allocation of the load has been to an explicit MOS. The alternative to an explicit MOS is an implicit MOS. Where the MOS will be implicit, it must be justified by use of one or more conservative assumptions in the development of the TMDL. The reductions in C and N load attributed to CSO and SW measures fail in this regard. Specifically:

a. CSO load reduction: As stated above and shown in the table below, CSO controls are proposed only in the Hackensack River and the Passaic River and Newark Bay management zones for both pathogens and C and N. Currently ½-inch Solids/Floatables Control Measures are operational or are being implemented at all CSO discharge points. These screening control measures are comparable to the preliminary treatment facilities that would be incorporated at control facilities that would be implemented to achieve pathogen reductions. The beneficial reductions in carbon and nitrogen loadings attributable to preliminary screening is already experienced or committed as a result of the screening requirements imposed in New Jersey.

The effectiveness of high-rate clarification treatment, a physical and chemical treatment process, is dependent upon the volumetric flow rates and the form and the relative concentration of the targeted pollutant. CSO discharges are highly variable in frequency, duration, and pollutant concentration. The assertion that additional reductions of N or C would result from the implementation of pathogen control measures is not supportable based on the lack of independent validation that non-biological treatment technologies can consistently achieve predictable reductions in C and N. Existing control measures are at or near current LOT for predictable N and C removal. Therefore, as a conservative assumption, no additional reduction in C or N should be assumed in the LOT run regarding CSO loads.

b. SW BMP reduction capabilities proposed in the draft TMDL plan were derived from a study that evaluated BMPs that are not appropriate for implementation in an urban setting. Based on discussions among New Jersey, New York and EPA, it is now agreed that retrofits of urban stormwater facilities is not realistic. Instead, modified reductions associated with stepping up measures already required for MS4 regulated stormwater should replace the assumptions that have been used in simulations to date. These reduction assumptions are as follows: 8% N, 15% C and 10% pathogens.

4. Finally, before proceeding with additional simulations, it is essential that key elements of the study be presented to the affected public. It is acknowledged that public involvement has occurred through the TMDL workgroup process of the Harbor Estuary Program and by posting information on the web. The NJ Harbor Dischargers group has been engaged on a regular basis and some environmental groups have periodically weighed in. However, the participants have not typically included municipalities, which will bear a significant cost burden to accomplish implementation, especially where CSO and/or SW measures are required. To be thoroughly transparent, the need for and purpose of the study, the degree of impairment and the degree of improvement that can be accomplished, and the assumptions that are inherent in the simulations (boundary conditions, future conditions, limits of treatment technology, etc.), all must be shared before a strawman, or recommended selected plan, is proposed. A flaw in one of the underlying assumptions could lead to the need for additional simulations and damage credibility of the study.

**TMDL Plan as Revised per Oversight Meeting and Follow-up Discussions**

<b>Sub-Region</b>	<b>Improvements for DO endpoints (<i>revisions in italics</i>)</b>	<b>Improvements for Pathogen endpoints (primary contact criterion—shellfish reductions not yet finalized)</b>
Hackensack River	BCUA and SMUA C & N LOT CSO and SW C & N LOT*	MS4 reductions SW: 10% CSO reductions 40%**
Passaic River and Newark Bay	CSO and SW C & N LOT*	Passaic River only: MS4 reductions SW: 10% CSO reductions 87%**
Raritan River and Bay	MCUA N LOT; <i>eliminate CSO and SW C &amp; N LOT</i>	
Kill van Kull	None	
Arthur Kill	LRSA, JMEU, RSA N LOT; <i>eliminate CSO and SW C &amp; N LOT</i>	
Hudson River/Upper Bay	PVSC, EMUA, NBMUA, Hoboken (NHSA Adams Street), West New York (NHSA River Road), Owls Head: <b>TBD C &amp; N</b>	
	*what constitutes SW and CSO LOT needs to be revised per above discussion.	** Based on follow up discussions, where SW pathogen reductions of 10% could be assumed with stepped up MS4 measures.