State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Monitoring and Standards
P.O. Box 420, 401 East State Street
Mail Code 401-04I
Trenton, NJ 08625-0420
Tel: (609) 292-1623
Fax: (609) 633-1276

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

CATHERINE R. McCABE
Commissioner

Alyssa Arcaya, Chief
Clean Water Regulatory Branch
290 Broadway, 24th Fl.
New York, NY 10007-1866

DEC 12 2019

Dear Ms. Arcaya,

The New Jersey Department of Environmental Protection (Department) is requesting the United States Environmental Protection Agency review and approval of New Jersey's revised nutrient criteria adopted, as part of the Surface Water Quality Standards at N.J.A.C. 7:9B-1.14(d)4i and ii, on January 18, 2011 at 43 N.J.R. 174(b), as presented below.

> N.J.A. C. 7:9B-1.14(d)4i: *Except as due to natural conditions, nutrients shall not be allowed in concentrations that render the waters unsuitable for the existing or designated uses due to objectionable algal densities, nuisance aquatic vegetation, diurnal fluctuations in dissolved oxygen or pH indicative of excessive photosynthetic activity, detrimental changes to the composition of aquatic ecosystems, or other indicators of use impairment caused by nutrients.*
>
> N.J.A. C. 7:9B-1.14(d)4ii Phosphorus (mg/L)
>
> (1) *Non Tidal Streams: Concentrations of total P shall not exceed 0.1 in any stream, unless watershed-specific translators are established pursuant to N.J.A.C. 7:9B-1.5(g)2 or if the Department determines that concentrations do not render the waters unsuitable in accordance with (d)4i. above.*
>
> (2) *Lakes: Concentrations of total P shall not exceed 0.05 in any lake, pond or reservoir, or in a tributary at the point where it enters such bodies of water, unless watershed-specific translators are developed pursuant to N.J.A.C. 7:9B-1.5(g)2 or if the Department determines that concentrations do not render the waters unsuitable in accordance with (d)4i. above.*

The EPA approved the 2011 amendments of re-codification and revision of the state's narrative nutrient criterion and the expansion of the application of the narrative criterion to all surface waters (including SE and SC waters) in a letter dated June 30, 2011 (attached). However,

at that time EPA made a determination not to take action on the phosphorus numeric criteria, for non-tidal streams at N.J.A.C. 7:9B-1.14(d)4ii(1), and lakes at N.J.A.C. 7:9B-1.14(d)4ii(2), pending that the Department provide additional justification on the protection of designated uses and clarify the implementation of the narrative nutrient criteria.

Although EPA did not take any action on 7:9B-1.14(d)4ii(2), criteria for lakes, it is the Department's understanding that EPA does not have any concerns regarding the application of numeric criterion of 0.05 mg/L for lakes, ponds and reservoirs. However, EPA has identified that without numeric phosphorus criterion for tidal freshwaters, primarily within the Delaware River and its tributaries, these waters may be vulnerable to future degradation since the numeric phosphorus criteria of 0.1 mg/L does not apply to the municipal sewage treatment plants discharging to the tidal freshwater portions of the Delaware River Basin. Although the tidal freshwaters continue to be protected by the narrative criterion as well as the antidegradation provisions at N.J.A.C. 7:9B-1.5(d) and antibacksliding provisions at N.J.A.C. 7:14A-13.19, EPA has recommended that the Department implement measures to ensure the protection of designated uses. Appendix 1 to this letter states the measures that the Department is committing to which would address EPA's concern.

EPA has also raised an issue regarding the Department's exemption of some dischargers from numeric phosphorus permit limits if they have successfully demonstrated through a water quality study that their effluent does not cause aquatic growth problems in the waterbody, downstream of their discharge consistent with N.J.A.C. 7:9B-1.14(d)4i. Implementation of the narrative criterion has been accomplished through the conduct of water quality studies for Phosphorus Evaluation as based on departmental guidance, "Technical Manual for Phosphorus Evaluations" 2004 and updated in 2008. EPA is concerned that although the discharge from the permitted facilities did not cause algal growth (eutrophication) at the time of the water quality study, changes to future conditions may result in excessive algal growth and low dissolved oxygen in the waterbody. The Department considers the 2011 amendments to the SWQS, as specified above, along with the explanation in Appendix 2 as clarification that the outlined additional measures will protect the waters' designated uses and will serve as a backstop when demonstrated that waters are not being rendered unsuitable for designated uses as a response to EPA's comments raised in the June 30, 2011 letter.

It should be noted that the Department will be revising the SWQS as part of its forthcoming Triennial Review. Significant revisions include: updating the bacterial criteria for primary contact recreational waters, freshwater ammonia criteria based on EPA's 2015 revisions and including general variance policies. The Department is also planning to amend phosphorus criteria at N.J.A.C. 7:9B1.14(d)4ii to include "site-specific criteria" in addition to watershed specific translators to reflect the nutrient policies at N.J.A.C. 7:9B-1.5(g)2 and will be adding language to protect existing and designated uses to the criteria. Through these revisions along

with the attached explanations on pending issues, the Department aims to resolve any outstanding concerns prior to our subsequent rule proposal.

The Department has prepared the following supporting documentation:

Appendix 1 - Relying on the narrative criterion in absence of numeric total phosphorus criteria in tidal freshwaters, and

Appendix 2 - Additional measures to be taken to serve as a "backstop" for scenarios when demonstrated that waters are not being rendered unsuitable for designated uses.

The Department expects that this clarification will satisfy EPA's requirements to protect the designated uses and enable EPA to proceed with the approval of its 2011 nutrient criteria. This letter and the attached supporting documents are being transmitted electronically to Wayne Jackson and Brent Gaylord. Questions concerning the Surface Water Quality Standards may be referred to myself or Kimberly Cenno, Bureau Chief, Bureau of Environmental Analysis, Restoration and Standards at (609) 633-1441.

Sincerely,

Bruce S. Friedman, Director
Division of Water Monitoring and Standards

Attachments:

- Appendix 1: Relying on the narrative nutrient criterion in absence of numeric Total Phosphorus criteria in tidal freshwaters.
- Appendix 2: Additional measures to be taken to serve as a "backstop" for scenarios when demonstrated that waters are not being rendered unsuitable for designated uses.
- EPA letter dated June 30, 2011.

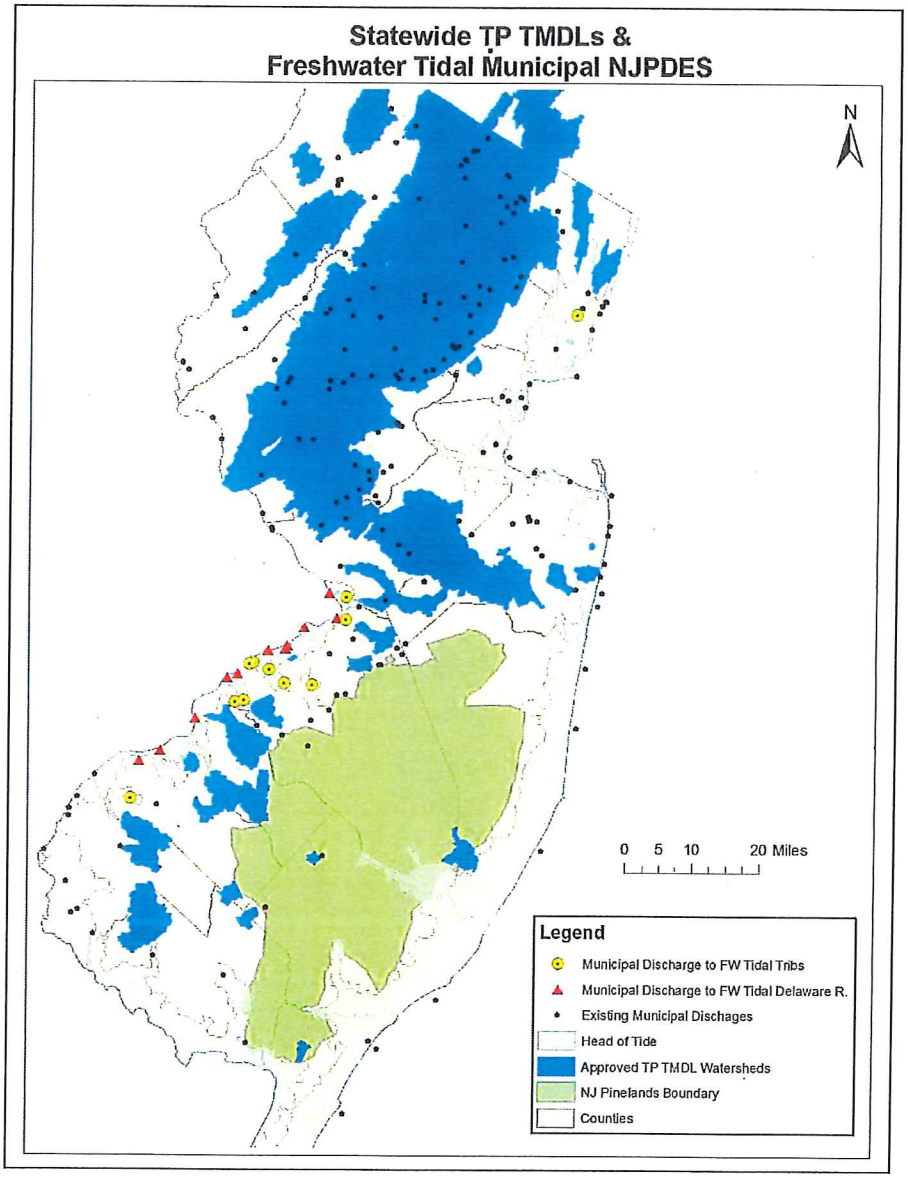
C: Kimberly Cenno, NJDEP, Bureau of Environmental Analysis, Restoration and Standards (BEARS)
Brent Gaylord, USEPA
Wayne Jackson, USEPA
Biswarup Guha, NJDEP, BEARS
Gigi Mallepalle, NJDEP, BEARS
Janice Brogle, NJDEP, Division of Water Quality (DWQ)
Carlton Dudley, NJDEP, DWQ
Susan Rosenwinkel, NJDEP, DWQ
Namsoo Suk, Delaware River Basin C ommission

APPENDIX 1

RELYING ON THE NARRATIVE NUTRIENT CRITERION IN ABSENCE OF NUMERIC TOTAL PHOSPHORUS CRITERIA IN TIDAL FRESHWATERS

All sanitary dischargers to tidal freshwater streams in New Jersey except one, Hudson Co BOCF Meadowview Hospital, NJ0023566.001A, as presented in the figure below, are in the Delaware River Basin. The Delaware River Basin Commission (DRBC) has jurisdiction over the dischargers to Delaware River tributaries; however, the Department is responsible for issuing Water Quality Based Effluent limits (WQBELs) to the New Jersey Pollutant Discharge Elimination System (NJPDES) dischargers located on tributaries to the Delaware River.

Without the implementation of any new phosphorus reductions in the Delaware River, phosphorus concentrations in tidal freshwater streams would continue to reflect those levels in the main stem Delaware River. Any phosphorus criteria developed by DRBC will inform the derivation of site-specific TP criteria for the tidal tributaries of Delaware River in New Jersey. New Jersey currently utilizes freshwater criterion of 0.1 mg/L on tributaries upstream of the head of tide. The DRBC currently does not have water quality criteria for phosphorus; however, is in the process of developing dissolved oxygen (DO) criteria. As per the resolution 2017-4[1], DRBC seeks to issue a final rule and an implementation strategy by 2023. Based on the DO criteria, the water quality studies and



[1] http://www.state.nj.us/drbc/library/documents/Res2017-04_%20EstuaryExistingUse.pdf

available data, DRBC anticipates utilizing a water quality model to evaluate if nutrient criteria, including phosphorus, are necessary for the main stem Delaware River and its tributaries up to the head of tide by 2026. In the meantime, the narrative nutrient criterion is applicable to these dischargers. To complement this effort, the Department plans to conduct additional monitoring on these tidal tributaries to the Delaware River to augment existing ongoing monitoring in the Delaware River Basin. This additional monitoring will make the ongoing water quality studies more scientifically defensible while ensuring the protection of designated uses.

APPENDIX 2

ADDITIONAL MEASURES TO BE TAKEN TO SERVE AS A "BACK-STOP" FOR IMPLEMENTATION OF NARRATIVE CRITERION

The Department has determined that implementation of narrative and numeric criteria established at N.J.A.C. 7:9B-1.14(d)4 provide adequate protection for the designated uses. The guidance manual for phosphorus evaluations entitled, "Technical Manual for Phosphorus Evaluations for NJPDES Discharge to Surface Water Permits" (Technical Manual) http://www.nj.gov/dep/dwq/pdf/p-manual-07-30-08.pdf is utilized by New Jersey Pollutant Discharge Elimination system (NJPDES) Discharge to Surface Water (DSW) permittees, consultants, and other interested parties who may be conducting a "render unsuitable for uses" analysis for total phosphorus.

The narrative part of the nutrient criterion at N.J.A.C. 7:9B-1.14(d)4i, as well as the nutrient policies at N.J.A.C. 7:9B-1.5(g), illustrate that the primary goal of the nutrient criteria is to protect designated uses from nutrient related impacts. Inclusion of the narrative nutrient criterion acknowledges that what constitutes an impairment is not phosphorus enrichment, by itself, but rather the manifestations of eutrophication that may result when phosphorus causes excessive primary productivity. This is appropriate because the level of nutrient over-enrichment that will produce an observable impact on waterbodies will exhibit a high degree of variability. As a result, the most appropriate measure to render the water unsuitable for the designated uses is the use of response indicators, i.e. chlorophyll-*a*, diurnal dissolved oxygen, variation in pH, and water clarity. Based on the above, the Department maintains that the narrative nutrient criterion adequately protects the designated uses related to nutrients.

The Technical Manual applies the principal of independent applicability of response indicators mentioned above. Further information on the required analyses and spatial extent are included in the Technical Manual.

Phosphorus Evaluations:

The Phosphorus Evaluation for dischargers with permitted flows greater than 64,000 gallons per day (GPD) who wish to demonstrate that the discharge will not render the waters unsuitable for designated uses must conform to the Department's protocols including an approved Quality Assurance Project Plan (QAPP) as outlined in the Technical Manual. Upon successful demonstration and subsequent Department approval of compliance with the determination of the phosphorus evaluations based on any Technical Manual study, a permittee continues to be subject to phosphorus monitoring as well as compliance with any existing and effective phosphorus limit(s). However, approval of the study may result in the following outcomes for the respective NJPDES permit:

- A permittee may request a modification of their NJPDES permit to remove a proposed phosphorus water quality based effluent limitation (WQBEL) derived from the 0.1 mg/L Total Phosphorus (TP) criteria. Note that an existing effective phosphorus limit in a NJPDES permit may only be removed / modified upon a successful demonstration of anti-backsliding (Section 402(o) and 303(d)4 of the CWA) and antidegradation (N.J.A.C. 7:9B-1.5(d)) policies; or
- Phosphorus limitations may be revised, again, in a future permit action to reflect a new or modified WQBEL based on a waste load allocation established through a total maximum daily load (TMDL), or reflective of any new or revised rule or regulation.

To date, twenty-one (21) phosphorus evaluation studies have been submitted to the Department for dischargers with permitted flows in excess of 64,000 GPD. Only four studies have passed the Technical Manual study. Of these four Waste Water Treatment Plants (WWTPs), the following two are within DRBC jurisdiction as their outfalls are within the DRBC Special Protection Waters (SPW):

- Newton WWTP, Paulins Kill (DRBC SPW), with a phosphorus WQBEL of 0.5 mg/L monthly average calculated based on 0.1 mg/L of Total Phosphorus criteria;
- Washington Borough WWTP, Pohatcong Creek (DRBC SPW).

Paulins Kill and Pohatcong Creek are well monitored at downstream control points by DRBC to determine compliance with antidegradation requirements, that is, no measurable change. DRBC monitors these control points for nutrients, dissolved oxygen, solids, macroinvertebrates, periphyton, flow and other conventional pollutants on a biweekly or monthly basis between May and September. Further information regarding SPW can be found at http://www.nj.gov/drbc/programs/quality/lower-delaware_EWQassessment2016.html.

Additionally, Newton WWTP has a WQBEL of 0.5 mg/L based on a Total Phosphorus criterion of 0.1 mg/L and hence will not have any adverse impact that would render Paulins Kill unsuitable for designated uses; as such no additional measures are necessary.

The remaining two studies were performed by Sussex County Municipal Utilities Authority (MUA) and Ewing Lawrence Sewerage Authority (SA). Sussex County MUA is located on the Wallkill River. The phosphorus evaluation study results submitted to the Department in 2010 indicated that the phosphorus criteria of 0.1 mg/L of Total Phosphorus did not impair the designated uses of the Wallkill River; therefore, the Department determined that the permittee comply with:

- The concentration limitation of a monthly average of 1.0 mg/L and weekly average "monitoring and reporting requirements" and monthly average and weekly average "monitoring and reporting requirements" for loading for the flow value of 2.5 MGD.
- The concentration limitation of a monthly average of 0.9 mg/L and a weekly average "monitoring and reporting requirements", and monthly average and weekly average "monitoring and reporting requirements" for loading for the flow value of 3.0 MGD.

The 2014 Integrated Report delisted Total Phosphorus and identifies Dissolved Oxygen as unimpaired in the subwatersheds (HUC14s) where Sussex County MUA discharges to.

Ewing Lawrence SA is located on Assunpink Creek upstream of head of tide and outside of DRBC's SPW boundaries. Ewing Lawrence SA recently completed a treatment plant upgrade in 2018. Given that effluent nutrient levels are expected to change, it would be inappropriate to calculate a water quality based effluent limit at this time until a long-term dataset is available. However, in order to continue protecting the receiving waters (Assunpink Creek) and to provide a backstop to assure that continued effluent levels are maintained, the Department will open the permit to incorporate phosphorus limits based on existing effluent quality (EEQ-concentration) (N.J.A.C. 7:14A-13.8).

SUMMARY OF THE FOUR DISCHARGERS WHO PASSED THE EXIT RAMP STUDY

Name of Discharger	**Receiving Waterbody**	**WQBELs** (if established)	**Comments**	**Future Permit Action**
Newton WWTP NJ0020184	Paulins Kill (DRBC SPW)	0.5 mg/L monthly average based on 0.1 mg/L TP criterion.	Monitored downstream by DRBC	Retain existing WQBELs.
Washington Borough WWTP NJ0021113	Pohatcong Creek (DRBC SPW)		Monitored downstream by DRBC	New phosphorus limit pending DRBC TMDL.
Sussex County MUA NJ0053350	Wallkill River	Monthly Average of 1.0 and 0.9 mg/L for flow value of 2.5 and 3.0 MGD respectively;	Receiving waterbody segments not impaired for TP and DO. NY is in early stages of TMDL	Retain existing limits.

		monthly and weekly average monitoring and reporting requirements for loading.	development	
Ewing Lawrence SA NJ0024759	Assunpink Creek		Monitored downstream by DRBC	Department proposes phosphorus limits based on existing effluent quality (EEQ).

Of the remaining seventeen studies, eleven have been overridden by TMDLs studies and six facilities obtained TP WQBELs based on 0.1 mg/L.

Future Evaluations

As an additional effort to address EPA's comments raised in the June 30, 2011 letter, the Department will eliminate the option to perform Phosphorus Evaluation studies for any dischargers with a permitted flow greater than 64,000 GPD to ensure that a backstop is being provided. Given that TMDLs for phosphorus have been adopted or are in process for major riverine systems in the State of New Jersey, the Department acknowledges that the utility of this manual is limited moving forward as phosphorus requirements have been appropriately supplanted by TMDL requirements.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

JUN 30 2011

Jill Lipoti, Ph.D., Director
Division of Water Monitoring and Standards
New Jersey Department of Environmental Protection
401 East State Street, Floor 2 West
P.O. Box 409
Trenton, New Jersey 08625-0409

Jill

Dear Dr. Lipoti:

The U.S. Environmental Protection Agency has completed its review of the revisions to the New Jersey Surface Water Quality Standards (NJSWQS) dated January 18, 2011. N.J.A.C. 7:9B. These revisions were adopted by the New Jersey Department of Environmental Protection on December 20, 2010 and became fully effective on January 18, 2011. They were submitted to the EPA on February 18, 2011. The submission was accompanied by a letter, dated February 17, 2011 from New Jersey Deputy Attorney General Jane F. Engel, which certified that the 2011 revisions had been adopted in accordance with New Jersey law. In taking this action, the EPA considered the following documents submitted in connection with the revised NJSWQS:

1. the letter from the New Jersey Deputy Attorney General Jane F. Engel, certifying that the standards were duly adopted pursuant to New Jersey law (dated January 17, 2011); and,

2. the applicable notices from the New Jersey Register (dated December 21, 2009 and, January 18, 2011).

Under Section 303(c) of the Clean Water Act (CWA), 33 U.S.C. § 1313(c), states are required to conduct a triennial review of their water quality standards and submit any new or revised standards to the EPA for review. Federal regulations at 40 C.F.R. §§ 131.20-131.22 implement these requirements. New Jersey's previous review and revision of its water quality standards were adopted on November 13, 2009 and became fully effective on December 21, 2009. As part of the review process on the 2011 revisions, NJDEP held an extended public comment period from December 21, 2009 to March 15, 2010 to receive public input and comment on the proposed revisions to the NJSWQS, and held a stakeholder meeting on March 10, 2010. The EPA considers the adoption of the 2011 revisions to the NJSWQS, along with the public review and comment process, to constitute the State's triennial review of water quality standards. Based on our review, NJDEP's procedures are consistent with, and satisfy the procedural requirements of 40 C.F.R. § 131.20.

In summary, NJDEP adopted amendments to its narrative nutrient and the phosphorus criteria, N.J.A.C. 7:9B-1.14(d)4 i and ii. As a result of this adoption, the nutrient criteria consist of:

- a general narrative criterion applicable to all nutrients, including phosphorus, which is applicable to all waters in the State; and,

- the existing numeric criteria for phosphorus, which are applicable in particular waterbodies.

The NJSWQS include the narrative criterion at N.J.A.C. 7:9B-1.14(d)4i and the numeric phosphorus criteria applicable to streams and lakes at N.J.A.C. 7:9B-1.14(d)4ii(1) and (2). According to NJDEP, the establishment of nutrients as a "substance" with a general narrative criterion followed by numeric criteria applicable to particular types of nutrients in particular waterbodies enables the State to consolidate numeric criteria for additional nutrients and nutrient-related pollutants for rivers and lakes, as well as numeric criteria for other waterbody types including waters classified as SE and SC, under the nutrients category. When criteria for other parameters are developed, amendments to the nutrient criteria will be proposed to incorporate these criteria within the nutrients category at N.J.A.C. 7:9B-1.14(d)4. This could include criteria for nitrate, nitrogen, and chlorophyll *a*, among others.

By this letter, I am pleased to approve the following revisions to the NJSWQS pursuant to Section 303(c) of the CWA, subject to the results of consultation under section 7(a) (2) of the Endangered Species Act.

- The re-codification, and revision, of the State's narrative nutrient criteria, which describes in narrative form the objectionable impacts to surface waters caused by nutrients and provides that it is the State's policy that nutrients shall not be allowed in concentrations that create these negative conditions, from N.J.A.C. 7:9B-1.5(g)2 to N.J.A.C. 7:9B-1.14(d)4i, which is approved as being consistent with the requirements under 40 C.F.R. § 131.11(a); and,

- The expansion of the application of this narrative to include estuarine and coastal waters (Class SE and SC waters), as well as fresh waters (FW waters), which is also approved as being consistent with the requirements under 40 C.F.R. § 131.11(a).

The EPA initiated consultation with the U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Administration Fisheries (Services) on these provisions on June 21, 2011, under Section 7(a)(2) of the Endangered Species Act. Section 7(a)(2) requires that federal agencies, in consultation with the Services, insure that their actions are not likely to jeopardize the existence of federally listed species or result in the adverse modification of designated critical habitat of such species. Upon completion of consultation with the Services, the EPA will notify NJDEP of the results.

As part of this rulemaking NJDEP also re-codified the State's numeric phosphorus criteria for lakes and streams from N.J.A.C. 7:9B-1.14(d)5i and ii to N.J.A.C. 7:9B-1.14(d)4ii(2) and (1), respectively. In summary, where nutrients cause undesirable conditions in freshwaters, NJDEP will require actions to reduce phosphorus by implementing the State's numeric phosphorus criteria at N.J.A.C. 7:9B-1.14(d)4ii. The numeric phosphorus criteria apply unless watershed-specific translators are established or until it is demonstrated that the narrative criterion for nutrients is met. The specific revisions are as follows:

- Restriction of the application of the numeric phosphorus criterion of 0.1 mg/L at N.J.A.C. 7:9B-1.14(d)4ii(1) to non-tidal streams.

- Application of the numeric phosphorus criterion of 0.05 mg/L for lakes, ponds and reservoirs at N.J.A.C. 7:9B-1.14(d)4ii(2) to these waterbody types, as well as tributaries at the point where they enter such bodies of water, unless watershed-specific translators are established pursuant to N.J.A.C. 7:9B-1.5(g)3, or if NJDEP determines that the narrative criterion for nutrients at N.J.A.C. 7:9B-1.14(d)4i is met.

- Revision of the numeric phosphorus criteria to replace the reference to watershed specific criteria with the term "watershed specific translators." Watershed-specific translators are established to demonstrate compliance with the narrative criterion to protect existing or designated uses for a specified watershed. Watershed-specific translators may only be established as part of a TMDL evaluation to demonstrate compliance with the narrative criterion. Watershed-specific translators may be an alternative criterion or a combination of criteria. For example, a watershed-specific translator could be a variation of the existing phosphorus criteria, criteria established for a new parameter such as Chlorophyll *a*, or a combination of criteria for different parameters (for example, Chlorophyll *a* and dissolved oxygen).

With regard to the revised provisions at N.J.A.C. 7:9B-1.14(d)4ii(1) and (2), NJDEP stated in its May 19, 2011 letter that, "We would like to provide additional information related to this rule to enable EPA to review and approve our Water Quality Standards in accordance with Section 303(c) of the Clean Water Act and 40 C.F.R 131 – Water Quality Standards Regulations." This letter also states that, "The Department has determined that it is necessary to clarify implementation of the narrative nutrient criteria." In summary, consistent with the requirements of 40 CFR §131.6(b), the outcomes, findings, and recommendations which will result from the State's efforts constitute necessary supporting documentation which is required in order for the EPA Region 2 to be able to make a final determination regarding the adequacy of these provisions. Therefore, the EPA has made a determination that it will not act on N.J.A.C. 7:9B-1.14(d)4ii(1) and (2) until the NJDEP has officially provided the EPA with the resultant supporting documentation. To this end, we encourage NJDEP to complete its evaluation and make recommendations by August 15, 2011.

The EPA Region 2 looks forward to continuing to work with NJDEP to further improve the NJSWQS. If you have any questions, please call me at (212) 637-3725 or have your staff contact Mr. Jeffrey F. Gratz, Chief, CleanWater Regulatory Branch at (212) 637-3873.

Sincerely,

Kevin Bricke, Acting Director
Division of Environmental Planning and Protection

cc: Ms. Debra Hammond, Chief, Bureau of Water Quality Standards and Assessment,
New Jersey Department of Environmental Protection