ENVIRONMENTAL PROTECTION

WATER RESOURCE MANAGEMENT

WATER MONITORING, STANDARDS AND PESTICIDE CONTROL

Surface Water Quality Standards; New Jersey Pollutant Discharge Elimination System

Adopted Amendments: N.J.A.C. 7:9B-1.1, 1.4, 1.5, and 1.14; and 7:14A-11.7

Adopted New Rule: N.J.A.C. 7:9B-1.16

Proposed: July 5, 2022, at 54 N.J.R. 1239(a).

Adopted: July 5, 2023, by Shawn M. LaTourette, Commissioner, Department of Environmental Protection.

Filed: July 5, 2023, as R.2023 d.092, with **non-substantial changes** not requiring additional public notice and comment (see N.J.A.C. 1:30-6.3).

Authority: N.J.S.A. 13:1D-1 et seq., 58:10A-1 et seq., and 58:11A-1 et seq.

DEP Docket Number: 5-22-5.

Effective Date: August 7, 2023.

Expiration Dates: October 17, 2023, N.J.A.C. 7:9B; October 3, 2029, N.J.A.C. 7:14A.

This rule adoption may be viewed or downloaded from the Department's website at https://www.nj.gov/dep/rules/adoptions.html.

The Department of Environmental Protection (Department) is adopting amendments to the Surface Water Quality Standards (SWQS), N.J.A.C. 7:9B, to revise the bacterial quality criteria for primary contact recreation at N.J.A.C. 7:9B-1.14(d)1 and the freshwater ammonia criteria at N.J.A.C. 7:9B-1.14(e), based on the recommendations of the United States Environmental Protection Agency (USEPA). The Department is also adopting a new rule at N.J.A.C. 7:9B-1.16

to establish provisions for the development, adoption, and implementation of water quality standards (WQS) variances. In addition, the Department is adopting changes to the total phosphorus criteria at N.J.A.C. 7:9B-1.14(d)4 to be consistent with the Department's nutrient policies at N.J.A.C. 7:9B-1.5(g)2. The Department is also adopting amendments to the New Jersey Pollutant Discharge Elimination System (NJPDES) rules at N.J.A.C. 7:14A to reflect the newly established WQS variances policy.

Summary of Hearing Officer's Recommendation and Agency's Response:

The Department held a public hearing on the notice of proposal on Thursday, August 3, 2022, at 10:00 A.M through the Department's video conferencing software, Microsoft Teams. Kimberly Cenno, Chief of the Bureau of Environmental Analysis, Restoration and Standards, served as hearing officer. Thirty-four people attended the hearing, and one person provided oral comments at the public hearing. After considering the testimony at the public hearing and the written comments received, the hearing officer recommended adoption of the proposed rule with the modifications described below in the Summary of Agency-Initiated Changes. The Department accepts the recommendation.

A record of the public hearing is available for inspection in accordance with applicable law by contacting:

Department of Environmental Protection

Office of Legal Affairs

ATTN: DEP Docket No. 5-22-5

401 East State Street, 7th Floor

Mail Code 401-04L PO Box 402

Trenton, NJ 08625-0402

This notice of adoption document can also be viewed or downloaded from the Department's website at https://www.nj.gov/dep/rules/adoptions.html.

Summary of Public Comments and Agency Responses:

The Department accepted comments on the notice of proposal through September 3, 2022. The following individuals provided timely written and/or oral comments:

1. Samantha Baillie, Ocean County Utilities Authority
2. James Cosgrove, Kleinfelder, Inc.
3. Jody Frymire, IDEXX Laboratories
4. Peggy Gallos, Association of Environmental Authorities
5. Samantha Jones, Chemistry Council of New Jersey
6. Matthew Krantz, Ewing Lawrence Sewerage Authority
7. Thomas A. Laustsen, Passaic Valley Sewerage Commission
8. Grant Lucking, New Jersey Builders Association

The comments received and the Department's responses are summarized below. The number(s) in parentheses after each comment identify the respective commenter(s) listed above.

General Support

1. COMMENT: The proposed changes to adopt a higher level of protection to the State's bacteria criteria are supported. (4)

2. COMMENT: The proposed Water Quality Standards Variance policy are supported. (2 and 4)
3. COMMENT: The proposed amendment to allow for site-specific criteria for phosphorus in addition to watershed-specific translators is supported. (2)

   RESPONSE TO COMMENTS 1, 2, AND 3: The Department acknowledges the commenters' support.

4. COMMENT: The commenter does not object to the proposed changes for primary contact recreational criteria. (2)

   RESPONSE: The Department acknowledges the commenter's position.

Primary Contact Recreation Criteria

Bacterial Indicator for Downgraded Waters

5. COMMENT: The Department should revise and remove the use of the bacteria indicator of fecal coliform as an acceptable bacterium for the assessment of fecal contamination of surface waters, such as secondary contact waters, and change the fecal contamination indicator to either *Escherichia coli (E. coli)* or enterococcus. (3)

   RESPONSE: As indicated in the notice of proposal Summary, 54 N.J.R 1239(a), the bacteria quality criteria in the Department's SWQS are applicable to three different designated uses: shellfish harvesting (Shellfish Waters), primary contact recreation waters (freshwater two [FW2], saline estuarine one [SE1], and saline coastal [SC] water classifications), and secondary contact recreation saline waters (SE2 and SE3 water classifications). The SE2 and SE3 water classifications are not designated for primary

contact recreation, which is defined in the SWQS at N.J.A.C. 7:9B-1.4 as "water-related recreational activities that involve significant ingestion risks and includes, but is not limited to, wading, swimming, diving, surfing, and water skiing." Most of the State's SE2 waters are located in the New York-New Jersey Harbor. In contrast, secondary contact recreation defines recreational activities as those "where the probability of water ingestion is minimal and includes, but is not limited to, boating and fishing." The bacteria quality criteria for these secondary contact recreational waters (downgraded waters) were established based on the Use Attainability Analysis (UAA) conducted by the Department and USEPA (NJDEP, 1985). The Federal regulations at 40 CFR 131.3(g) defines a UAA as "… a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in § 131.10(g)."

The Department's proposed amendments to the existing bacteria criteria for the primary contact recreational waters at N.J.A.C. 7:9B-1.14(d)1ii to enterococcus (SE1 and SC water) and *E. coli* (FW2 waters) are based on the USEPA's 2012 recommendations (USEPA, 2012).

The Department acknowledges the commenter's recommendations to change the fecal contaminant indicator from fecal coliform to enterococcus for secondary contact recreational waters. However, to assess the attainment of the waters, which are designated solely for secondary contact recreation designated use, the Department is retaining fecal coliform as the bacterial indicator for the secondary contact recreational criteria until the highest attainable use of the downgraded waters is reevaluated.

Implementation

6. COMMENT: The notice of proposal indicates that new bacterial water quality standards will be adopted in place of the existing bacterial water quality standards for waters designated for primary contact recreation. The new water quality standards are based on a 90-day averaging period and include a statistical threshold value (STV) that should not be exceeded in more than 10 percent of the samples collected over the 90-day period. However, the Department will also retain the current pathogen limits as a 30-day geometric mean. This creates a water quality-based effluent limitation (WQBEL) that is more restrictive than the adopted water quality standards, which is not permissible. As the Department is replacing the current water quality standard with a new, lower water quality standard, there is no regulatory basis for also imposing a 30-day geometric mean limit. For the same reason, the permit should not include a single sample maximum limit as that fails to reflect the allowable frequency that such value may be exceeded – 10 percent of the time. If such limits are to be included in National Pollutant Discharge Elimination System (NPDES) permits, the 30-day geometric mean and/or single sample maximum should be statistically adjusted such that the new limits are not more stringent than the proposed 90-day geometric mean. (7)

   RESPONSE: Fecal indicator bacteria are a common component of untreated sanitary wastewater, and the NJPDES permit limits serve to guide disinfection practices at treatment plants to ensure that wastewater is treated effectively so that fecal indicator bacteria water quality standards are met in the receiving waterbody. Accordingly, the Department incorporates bacterial requirements within NJPDES discharge to surface water permits as effluent limitations to regulate sanitary wastewater components, consistent with the

NJPDES rules at N.J.A.C. 7:14A, as well as the SWQS rules at N.J.A.C. 7:9B-1.14(d)1ii(1) and (2), which set forth primary contact criteria for bacterial quality. Specifically, criteria for bacterial quality (colony forming units [cfu] per 100 milliliters [ml]) for primary contact recreation for SE1 and SC (saline) waters are set as a geometric mean for enterococcus and for primary contact recreation for FW2 (freshwater) waters are set as a geometric mean for *E. coli*. In accordance with N.J.A.C. 7:9B-1.5(h)5, regulatory mixing zones are prohibited for fecal indicator bacterial quality, including fecal coliform, *E. coli*, and enterococcus. Thus, the Department currently sets NJPDES effluent limitations of 35 cfu/100 ml for enterococcus as a monthly geometric average for SE1 and SC waters and 126 cfu/100 ml for *E. coli* as a monthly geometric average for FW2 waters with instant maximum (that is, single sample maximum) reporting for SE1, SC, and FW2 waters.

For the purposes of determining attainment of bacterial standards in the surface waters of the State designated for primary contact recreational use and preparing the biennial Integrated Water Quality Assessment Report (Integrated Report or 305(b) Report), the Department will apply the 90-day duration for the adopted geometric means and STVs for enterococcus and *E. coli*.

However, pursuant to the adopted recreational water quality criteria, the Department intends to implement the amended bacteria criteria in NJPDES permits for discharges to freshwater using *E. coli* as an indicator and saline waters using enterococcus as an indicator. The Department is retaining the existing NJPDES permit limits for *E. coli* and enterococcus on a monthly average basis. In the discharge monitoring report to be submitted by the discharger, reporting of a monthly instant maximum concentration will also be required to be compared against an action level of 320 cfu/100 ml for *E. coli* and

110 cfu/100 ml for enterococcus, applied as an STV. The action level represents a threshold that, if exceeded, will require the permittee to submit additional data to the Department, based on which the Department will then perform an analysis of those individual data points to determine compliance with the STV.

The STV is the value that approximates the 90th percentile of the water quality distribution and is not to be exceeded more than 10 percent of the time over the 30-day reporting period. For discharges to SE1 and SC waters and using enterococcus as an indicator, the Department will implement the amended bacteria criteria in NJPDES permits as a monthly geometric mean permit limit and as a monthly action level of 110 cfu/100 ml applied as an STV.

The Department maintains that the adopted requirements are necessary, and that there is a regulatory basis for inclusion in NJPDES permits of both a limit based on a monthly duration, as well as a monthly action level to incorporate the STV requirements. In addition, NJPDES requirements must be clear, specific, and measurable, and there are several reasons to retain effluent requirements as a monthly duration, consistent with existing NJPDES permits. The NPDES rules and regulations at 40 CFR 122 require that, unless impracticable, effluent limits for continuously discharging publicly owned treatment works will be expressed as average monthly and average weekly values. A monthly geometric mean is also consistent with the NJPDES rules at N.J.A.C. 7:14A-12.5, which require reporting on a monthly basis. The terms “serious violation” and “significant noncomplier” are defined in the Department’s Water Pollution Control Act rules at N.J.A.C. 7:14-8.2 and are based on a monthly duration. The civil administrative penalty determinations pursuant to these rules at N.J.A.C. 7:14-8.5 are also premised on serious

violations, which further support retaining a monthly average requirement in NJPDES permits. The Department's current compliance and enforcement procedures ensure that any violation of the monthly geometric average as reported on monthly report forms are automatically flagged within the Department's database ensuring prompt enforcement oversight. NJPDES permitted facilities are also currently required to meet this criterion monthly. As a result, treatment technology and processes are already in place and available to attain existing limits as applied on a monthly duration.

Retention of the existing monthly geometric average will also ensure that there are no changes to disinfection practices to attain permit limits, thereby ensuring that the anti-degradation requirements at N.J.A.C. 7:9B-1.5(d) are satisfied.

While the Department intends to continue with permit limits premised on a monthly duration as described above, it will also revise the NJPDES permits to incorporate STV requirements upon adoption and the USEPA's approval of this rulemaking. To incorporate these STV requirements, the permittee will be required to report an instant maximum over the monthly duration where this value can be compared against the action level of 110 cfu/100 ml for enterococcus or 320 cfu/100 ml for *E. coli*. If that instant maximum value over a monthly duration exceeds 110 cfu/100 ml for enterococcus or 320 cfu/100 ml for *E. coli*, the permittee will have triggered the action level and will be required to submit additional data. The Department will then perform an analysis of those individual data points to determine if more than 10 percent of the individual reported data points exceed the value of 110 cfu/100 ml for enterococcus and 320 cfu/100 ml for *E. coli*.

The Department will continue to impose a monthly duration period for effluent limitations for NJPDES facilities which must monitor for enterococcus and *E. coli* bacteria.

Further, the inclusion in NJPDES permits of a 30-day geometric mean, coupled with an STV requirement as an action level, is a practical and protective means of regulating bacterial quality in NJPDES permits that is consistent with regulatory requirements and the adopted provision at N.J.A.C. 7:9B-1.5(c)8.

7. COMMENT: How is the STV going to translate into discharge permits? (1)
8. COMMENT: The geometric mean criterion for *E. coli* is proposed to be decreased in all FW2 streams from 126/100 ml over a 30-day period to 100/100 ml over a 90-day period, while the single sample maximum of 235/100 ml is proposed to be modified to an STV of 320/100 ml. How will these changes be incorporated into NJPDES permits? NJPDES permits typically only contain a monthly geometric mean of 126/100 ml. The Department should continue its policy of setting the geometric mean as the effluent limit and requiring reporting for the STV. (2)

   RESPONSE TO COMMENTS 7 AND 8: The Department agrees with the commenters and intends to utilize an approach of retaining bacterial quality permit limits for enterococcus and *E. coli* over a monthly reporting period, along with inclusion of an STV requirement as an action level for those waters designated as primary contact recreation, as explained in the Response to Comment 6. This practice is consistent with anti-backsliding requirements for effluent limitations according to the Clean Water Act (CWA) Section 402(o), 33 U.S.C. § 1342, and will also ensure that permit requirements are clear, specific, and measurable.

   The single sample maximum of 235/100 ml for *E. coli,* as identified in this comment and specified at N.J.A.C. 7:9B-1.14(d), is not currently used for NJPDES permit

limits, but rather is utilized for beach notification, in accordance with the Department of Health's Public Recreational Bathing rules, N.J.A.C. 8:26.

9. COMMENT: Will an attachment be submitted with the monthly discharge monitoring report (DMR) capturing all data points over the previous 90-day period? Or only when the Department determines one value has exceeded the STV, and then a full review of the 90 days will be done to determine if the exceedance occurs more than 10 percent of time? (1) RESPONSE: The Department will continue to require the permittees to report effluent limitations for enterococcus and *E. coli* as a monthly average geometric mean in the DMRs. The Department will also require monitoring and reporting for an instant maximum over a monthly duration. As described above in the Response to Comment 6, this instant maximum will be compared against an action level to evaluate whether the instant maximum is more than the action level of 110 cfu/100 ml for enterococcus and 320 cfu/100 ml for *E. coli*. Any exceedance of the action level will trigger a submission of individual data points for enterococcus or *E. coli* so that an evaluation can be performed against the appropriate STV.

10. COMMENT: Will the geometric mean limits still be reported in the DMR as consistent with the existing rule and NJPDES rules since that is how the database is set up and how enforcement is defined (on a monthly basis)? (1)
11. COMMENT: The Department gives the example of 10 samples over 90 days, with one exceedance of the STV essentially acting as a single sample maximum. Therefore, if you test daily, 90 samples over 90 days, eight samples can exceed the STV, but the ninth sample

in exceedance would be 10 percent of samples, putting the discharger over the STV frequency threshold. The Department should confirm if this is accurate. (1)

RESPONSE TO COMMENTS 10 AND 11: As described in the Response to Comment 6, the Department will be applying the STV value as the instant maximum concentration in NJPDES permits, which will serve as an action level. The permittee shall report the highest value for the month on the monthly monitoring report form. If the instant maximum exceeds the action level, the permittee must include an attachment to its DMR submittal that includes all sampling for the bacterial indicator that has been performed for the 30-day period. The Department will then review the available data from the monthly period in question, as well as the next two months (encompassing a 90-day period) to determine if more than 10 percent of the samples reported exceed the STV value found in the permit.

Therefore, the Department agrees with the first part of Comment 11 indicating that, if there are less than 10 samples reported within the 90-day period, one exceedance of the STV will act as a single sample maximum prompting a full review of the data for 90 days to determine if more than 10 percent of the samples reported exceed the STV value for the 90-day period. In accordance with N.J.A.C. 7:9B-1.14(d)1, a violation will only be found to have occurred if more than 10 percent of the samples reported over the 90-day period exceed the STV value found in the permit. The adopted definition of STV at N.J.A.C. 7:9B-1.4 also provides that up to 10 percent of the samples may exceed the STV. Therefore, in the example provided by the commenter, the ninth sample that exceeds the STV would not be a violation since this sample would represent 10 percent of the 90 daily samples, but would not exceed the 10 percent limit. If a 10^{th} sample exceeded the STV, the permittee would then be in violation, since this sample would represent 11 percent of the 90 samples.

12. COMMENT: For dischargers with permits that currently regulate fecal coliform, when *E. coli* is imposed, there should be a compliance schedule for *E. coli* during which the discharger will perform dual fecal and *E. coli* sampling, so that the permittee can optimize its disinfection to meet the new *E. coli* limits. The *E. coli* limits could become effective at the end of the compliance schedule (unless the permittee requests an earlier effective date). (4)

    RESPONSE: The majority of NJPDES permits for discharges to waters classified as FW2, SE1, and SC currently include effluent limits for enterococcus and *E. coli* that are consistent with the existing regulations at N.J.A.C. 7:9B-1.14(d)1ii(1) and (2). Thus, a compliance schedule is not needed. NJPDES permits for discharges to SE2 and SE3 waters include limits only for fecal coliform consistent with N.J.A.C. 7:9B-1.14(d)1iii. The adopted amendments do not impose bacterial quality criteria for *E. coli* or enterococcus for the waters classified as SE2 and SE3 (secondary contact recreational waters). The permits that currently regulate fecal coliform discharge to these secondary contact recreational waters will not be impacted by the adopted amendments.

13. COMMENT: The Department should not underplay the significance of increased costs for chlorination by hypochlorite or chlorine gas to meet these proposed bacteria quality criteria. Impacted treatment facilities should be given a reasonable amount of time to conduct operational assessments to determine optimized dosing rates so they are able to meet the new bacterial quality requirements without overdosing chemicals. (5)

RESPONSE: The Department is retaining the existing limits of enterococcus and *E. coli* on a monthly average basis to ensure that existing disinfection practices are maintained. Permittees are currently required to report an instant maximum in NJPDES permits. An exceedance of the instant maximum above the action level will trigger the collection of more data and a compliance evaluation against the STV and geomean over a 90-day duration. Generally, there are limited compliance issues with bacteria limits for sewage treatment plants that are properly operated and maintained. Those permittees already operating below the current bacterial quality criteria may not have to perform additional treatment. Based on a review of available data from affected sanitary wastewater treatment facilities, the Department anticipates minimal changes to disinfection practices to ensure compliance with the new STV requirements.

Implementation

14. COMMENT: Although not discussed in the proposed rulemaking, SWQS for bacterial indicators are applied as end-of-pipe effluent limits instead of as water quality-based effluent limits. This application implies that recreational exposure occurs in the effluent. The commenter is not aware of any circumstance where this is the case. USEPA's "policy" that supported the no mixing zone approach for bacterial WQS was vacated in *Iowa League of Cities v. EPA*, 711 *F.*3d 844 (8th Cir. 2013). The rules should be amended to account for some amount of dilution where dilution is available and recreational contact is unlikely, particularly in waters designated only for secondary contact and in deep waters where the effluent plume is submerged. Such an approach would avoid the use of excess chlorine in achieving compliance with the applicable WQS. (7)

RESPONSE: Regulatory mixing zones must be consistent with the provisions at N.J.A.C. 7:9B-1.5(h), which prohibits the establishment of mixing zones for certain parameters including indicators of pathogenic quality, such as fecal coliform, *E. coli*, and enterococcus. As a matter of public policy, the Department has determined that it is not appropriate to have areas of elevated pollutant concentrations (mixing zones) impacting areas the Department believes deserve special protection, such as recreational areas, potable surface water intakes, and shellfish harvesting areas. Accordingly, as the commenter correctly states, the criteria established at N.J.A.C. 7:9B-1.14(d)1ii(1) and (2) are applied directly as effluent limitations. The prohibition on mixing zones for bacterial standards protects public health from potential exposure to fecal contamination. This does not imply that recreational exposure occurs in the effluent. Rather, it ensures that there is no possibility of exceedance of the bacterial standard within the receiving water, where exposure occurs. The adopted amendments do not affect N.J.A.C. 7:9B-1.14(d)1ii(1) and (2).

Freshwater Ammonia Criteria for Aquatic Life

General

15. COMMENT: The rule proposal states "[s]ome facilities use a [biological oxygen demand] BOD-related, [dissolved oxygen] DO-based [water quality based effluent limit] WQBEL in the summer and a toxicity-based WQBEL in the winter, and may, therefore, experience some impacts due to the proposed freshwater ammonia criteria." Most systems do not have toxicity-based permitted limits for this condition, and pH and temperature are the most significant drivers of total nitrogen ammonia levels in acute water systems. There is a

stronger case for permitting to emphasize a BOD-related DO-based WQBEL and remove the option of performing seasonal monitoring by a toxicity-based WQBEL. (5)

RESPONSE: Ammonia is a common component of untreated sanitary wastewater. NJPDES permits regulate discharges of ammonia by setting effluent limits to ensure that water quality standards are met in the receiving waterbody where criteria are established at N.J.A.C. 7:9B-1.14(e). Accordingly, the Department incorporates site-specific limits for ammonia into NJPDES discharge to surface water permits to regulate sanitary wastewater components, consistent with the SWQS. Historically, these limits have been routinely incorporated into NJPDES permits for sanitary wastewater.

Ammonia can affect aquatic life in two distinct ways when discharged into a waterbody: (1) ammonia may exert a nitrogenous biological oxygen demand (NBOD) in which ammonia is oxidized, potentially resulting in decreased DO levels and DO-impairments; and (2) ammonia can be directly toxic to aquatic life. Depending on the nature of the discharge and the receiving waterbody, these underlying mechanisms require equal consideration when evaluating the need for a WQBEL for ammonia. For example, pursuant to N.J.A.C. 7:14A-13.6, where the Department determines that a given discharge either causes, has the reasonable potential to cause, or contributes to an exceedance of the ammonia surface water criteria, it must establish a WQBEL in accordance with the USEPA Technical Support Document for Water Quality Based Toxics Control (USEPA, 1991), unless the affected permittee demonstrates that none of the methods in the technical support document are applicable and that an alternative method will yield a WQBEL that satisfies the SWQS. The applicable WQBEL would be the more stringent of the DO- or toxicity-based limits.

Regarding seasonal versus year-round ammonia limitations, ammonia toxicity, solubility, and treatment efficiency are affected by a variety of geochemical environmental parameters, which must be taken into account. For example, as temperature increases, the proportion of un-ionized ammonia increases, which can result in increased toxicity for some species. Therefore, N.J.A.C. 7:14A-13.9 enables the Department to develop seasonal WQBELs to protect against the toxic effects of ammonia in the receiving water during all seasons, while still accounting for decreases in biological activity during cold weather. Although most DO-based ammonia limits are year-round, there are a few that are seasonal depending on the results of the water quality studies. When DO-based limits are only required for the summer season, the Department is still required to assess the applicability of toxicity-based limits in the winter season. However, the applicable WQBELs that are imposed in permits are the more stringent of the DO- or toxicity-based ammonia limits for both the summer and winter seasons.

16. COMMENT: The Department should clarify the frequency threshold for chronic criteria and acute criteria. (1)

RESPONSE: The freshwater ammonia criteria for aquatic life are expressed as equations to compute chronic and acute magnitudes. As included in the adopted rules at N.J.A.C. 7:9B-1.14(e)2, the chronic criteria magnitude for ammonia utilizes a 30-day rolling averaging duration. Chronic criteria for ammonia represent 30-day average values not to be exceeded more than once every three years to prevent long-term detrimental effects to aquatic life. In addition, when assessing the chronic criteria, the highest four-day average within the 30-day rolling period should not be more than 2.5 times the chronic criteria

magnitudes. The acute criteria for ammonia utilizes one-hour averaging duration, and the acute criteria magnitude should not be exceeded on a frequency of more than once every three years.

17. COMMENT: Regarding the protection of existing uses, if sensitive species were documented in a stream since November 1975, must they be considered present even if they cannot be found? (1)

RESPONSE: In accordance with the Federal regulations at 40 CFR 131.10(a) and 131.12(a)(1), states and the tribes should maintain and protect existing instream water uses, and the level of water quality necessary to protect the existing uses. Existing uses are "those uses actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards" (see 40 CFR 131.3; N.J.A.C. 7:9B-1.4). Therefore, the most sensitive uses that have occurred in a given waterbody since November 28, 1975, should be protected.

If unionid mussels, which are highly sensitive to ammonia, are found in a given waterbody on or after November 28, 1975, they are considered present. As discussed in the notice of proposal Summary, 54 N.J.R. at 1243(a), and the USEPA's "Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-specific Water Quality Criteria for Ammonia" (USEPA 2013b), it is difficult to disprove the presence of or future colonization of unionid mussels at a particular location due to the ease of mussel colonization. Even if mussels are not found in a waterbody, unionid mussel surveys must still be repeated every two to three years, at a

minimum. The technical support document cited above also offers guidance regarding the use of historical data.

Implementation

18. COMMENT: The Department is proposing an update that will result in much more stringent ammonia effluent limits for some permittees. There has been controversy about the USEPA criteria, and some states have declined to adopt them. Given that, the Department should defer use of the USEPA 2013 criteria for one year and further study this matter. (4)
19. COMMENT: The Department should consider adopting a long-term compliance schedule of at least 15 years for facilities that cannot afford the capital costs, as well as to facilitate public utilities' scheduling of the necessary plant improvements, consistent with other public infrastructure investment needs (drinking water, wastewater, stormwater, etc.) through integrated planning. (4)

    RESPONSE TO COMMENTS 18 AND 19: The Department has followed the guidance of the USEPA in establishing water quality standards pursuant to the CWA since the USEPA released the Quality Criteria for Water with ammonia criteria in 1986 to protect aquatic life from acute and chronic effects of ammonia in freshwater ecosystems. Upon the effective date of this rulemaking, the Department will evaluate existing NJPDES permits and, if applicable, incorporate the adopted requirements during renewal of the affected permits or as a modification. If the Department anticipates that the permittee cannot consistently meet the adopted limits based on existing effluent data, a schedule to achieve compliance may

be appropriate, along with interim requirements, in accordance with the rules for Schedules of Compliance at N.J.A.C. 7:14A-6.4. The length of any schedule will be determined based on information provided to the Department by the permittee including, but not limited to, construction, associated timelines, and any costs as part of the assessment of the improvements to be made to the treatment plant.

20. COMMENT: How many dischargers does the Department anticipate will apply to use the site-specific criteria option or apply for a Use Attainability Analysis (UAA)? (1)

RESPONSE: Regarding the site-specific criteria and UAA for ammonia, the Department does not anticipate overly burdensome, compliance-related economic impacts associated with WQBELs that are calculated based on the proposed USEPA ammonia criteria to the extent that a UAA or a WQS variance will be requested by a discharger. As noted in the Response to Comment 17, a site-specific criterion may not be appropriate because of the difficulty in demonstrating the absence of the aquatic species that were used to derive the USEPA's recommended freshwater ammonia criterion, the process of which is described in detail below. Due to the difficulty of the process, the Department does not anticipate that dischargers will request the Department to develop site-specific alternative criteria.

However, as indicated in the notice of proposal Summary, 54 N.J.R. at 1243(a), and in the "Flexibilities for States Applying EPA's Ammonia Criteria Recommendations" (USEPA, 2013a), states have flexibility in implementing or applying the USEPA's ammonia criteria, including options such as: utilizing the recalculation procedure for developing site-specific criteria derivation, WQS variances, revisions to designated uses, dilution allowances, and compliance schedules.

The USEPA provides states with the option to recalculate a site-specific criterion, which is defined at N.J.A.C. 7:9B as "an alternative criterion established, at N.J.A.C. 7:9B-1.14(g), in place of an existing Statewide criterion, to protect existing or designated uses for specified waterbody(ies)." When freshwater mussels are not present in the waterbody, adopted new N.J.A.C. 7:9B-1.5(c)10 enables a permittee to request the Department to adopt an alternative criterion if the permittee can demonstrate, to the satisfaction of the Department, that an alternative criterion is applicable in place of the freshwater total ammonia criteria specified at N.J.A.C. 7:9B-1.14(e)2. A surface water discharger may request the Department to consider such site-specific ammonia criteria utilizing the "Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-Specific Water Quality Criteria for Ammonia" (USEPA, 2013b). If it is unknown whether mussels are present in the waterbody of concern, it is then necessary to assess whether to utilize existing mussel data or to collect new data.

If mussels are demonstrated to be present in the waterbody of concern, both the applicability of the USEPA (2013b) freshwater ammonia criteria, as well as the use attainability of the waterbody may be evaluated. In the case of ammonia, a UAA would likely be based on the factor described at 40 CFR 131.10(g)(6), which allows a designated use to be removed where water quality-based controls "… would result in substantial and widespread economic and social impact." The USEPA's Interim Economic Guidance for Water Quality Standards: Workbook (USEPA, 1995) and the Final 2023 Clean Water Act Financial Capability Assessment Guidance (USEPA, 2023; 2023 Financial Capability Assessment Guidance) include guidance on the types of information that will be considered

and should be included to support a use revision. The Department will utilize the 2023 USEPA Clean Water Act Financial Capability Assessment Guidance (or any new State or Federal guidance thereof) to determine "substantial and widespread economic and social impact." In particular, Section III of the 2023 Financial Capability Assessment Guidance is intended to assist states in the consideration of economic impacts to public entities for supporting water quality standards variances. As stated below, in the Summary of Agency-Initiated Changes, the Department is also modifying N.J.A.C. 7:9B-1.16(b)4vi and N.J.A.C. 7:9B-1.16(c)6 to include a reference to the 2023 Financial Capability Assessment Guidance.

If the designated use is unattainable at the present time, and the Department has determined that there is a reasonable potential for the permittee to cause or contribute to an excursion above the newly adopted ammonia criteria, and the ammonia criteria is determined to be attainable after the application of dilution allowances and compliance schedules, the permittee may request the Department to consider a discharger-specific variance, as long as the variance is consistent with the SWQS at N.J.A.C. 7:9B-1.16, the CWA, and the NJPDES rules at N.J.A.C. 7:14A. If a discharger-specific variance is requested, the permittee must satisfy at least one of the conditions listed at N.J.A.C. 7:9B-1.16(b)4 and submit the information included at N.J.A.C. 7:9B-1.16(c).

21. COMMENT: The Department should consider a variance procedure for facilities that cannot afford the associated capital costs. This measure would facilitate integrated planning of necessary plant improvements. (4)

RESPONSE: As stated in the notice of proposal Summary, 54 N.J.R. at 1247(a), if a facility cannot afford the capital costs involved to comply with a surface water quality standard, the permittee must demonstrate, to the satisfaction of the Department, that the water quality standards cannot be met because controls more stringent than those required by sections 301(b) and 306 of the CWA would result in substantial and widespread economic and social impact.

However, the Department cannot rely on only associated capital costs when it considers a WQS variance for a given substance, waterbody, or permittee. A WQS variance can be adopted when, at a minimum, it is demonstrated that the designated use and criterion of the waterbody addressed by the WQS variance cannot be achieved by implementing technology-based effluent limits (TBELs) in accordance with sections 301(b) and 306 of the CWA without causing substantial and widespread economic and social impact. For more detail on the variance submittal requirements required to demonstrate "substantial and widespread economic and social impact" and the controls required by sections 301(b) and 306 of the CWA, see the Response to Comment 31.

22. COMMENT: The Department should maintain its long-standing policy of using public Clean Water State Revolving Funds (SRF) available solely for the improvement and enhancement of value of utility properties that are publicly owned, rather than for the enhancement of utility assets that are held by private owners. (4)

RESPONSE: The Federal requirements at 40 CFR 35.3115 establish the eligible activities of the SRF and allow the provision of funds to public entities. Specifically, "[f]unds in the SRF shall not be used to provide grants. SRF balances must be available in perpetuity and

must be used solely to provide loans and other authorized forms of financial assistance … [t]o municipalities, inter-municipal, interstate, or State agencies for the construction of publicly owned wastewater treatment works as these are defined in section 212 of the Act and that appear on the State's priority list developed pursuant to section 216 of the Act."

In New Jersey, qualifying entities include: a State authority, county, municipality, municipal, county or regional sewerage or utility authority, municipal sewerage district, joint meeting, improvement authority, or any other political subdivision of the State authorized to construct, operate, and maintain wastewater treatment systems.

State loan funding is only provided to publicly owned wastewater treatment facilities. However, if a unit of government assumes ownership of a system that was previously privately owned, it may be funded under the authority of CWA section 603(c). The Department may find the public ownership requirement to be satisfied for small/onsite systems where adequate inspections and operations are assured through the establishment of a management district or use of service easements or agreements. The Federal Fiscal Year 2023 and State Fiscal Year 2024 Intended Use Plan provides that a local government unit can sponsor a project on behalf of a private entity to provide a general obligation pledge making the private entities also eligible through public conduit borrowers. Public conduit borrowing often occurs in redevelopment projects facilitated by private entities and where upgrades to wastewater facilities are needed. In such a context, the municipality would be eligible to receive SRF funds to upgrade the wastewater facilities. Notably, these types of projects are not eligible to receive the financial incentives that typically accompany SRF funds, such as principal forgiveness and low interest rates.

23. COMMENT: The Department should dedicate funds, including grants, for compliance with the updated freshwater ammonia standard in its Intended Use Plans in 2023 through 2028. (4)

24. COMMENT: The proposed ammonia criteria may require significant upgrades by many treatment plants. It is crucial that treatment capacity is available for the construction of new housing and that the costs of compliance do not substantially impact the shelter industry due to New Jersey's ongoing housing affordability crisis and its unmet constitutionally mandated need of affordable housing. Accordingly, the Department should explore making funding available to treatment facilities where upgrades are needed, so that these costs are not transferred to ratepayers or homebuilders through connection fees, and do not result in reduced service capacity. (8)

25. COMMENT: If the Department moves forward with the proposed ammonia criteria, grant money (not low interest loans) should be provided where significant treatment plant upgrades are necessary to comply with effluent limits that are reduced to achieve compliance with the new criteria. (2)

RESPONSE TO COMMENTS 23, 24, AND 25: As stated in the Response to Comment 22, the Department, through its Clean Water SRF, provides low-interest loans for the construction of projects that protect, maintain, and improve water quality. Publicly owned treatment works (towns, boroughs, municipal utilities authorities, counties, regional water authorities, and other local government units) or private entities through public conduit borrowers are eligible.

Clean Water SRF in the amount of approximately $278 million is available for Fiscal Year 2024 and will be provided to clean water projects on a "readiness to proceed"

basis. Project sponsors would generally qualify for the Clean Water SRF base financing package at long-term loan closing. Base financing consists of low-interest loans with a blended interest rate of 50 percent of the I-Bank's AAA market rate. Information on Water Bank funding packages for clean water projects can be found in our final SFY23 Clean Water SRF Intended Use Plan and Proposed SFY24 Clean Water SRF Intended Use Plan posted to the Department's Water Infrastructure Investment Plan website.

Sponsors that meet the Clean Water SRF Affordability Criteria are eligible to receive up to 100 percent principal forgiveness for the first $2 million of project costs. Project costs between $2 million and $4 million will be financed with a blended interest rate of 50 percent of the I-Bank's AAA market rate. Project costs between $4 million and $10 million will be financed with a blended interest rate of 25 percent of the I-Bank's AAA market rate. Project costs over $10 million will be financed at the Clean Water SRF base (50 percent of the I-Bank's AAA market rate). Thirty-six million dollars per year are set aside in SFY23 and SFY24 for projects that meet the Clean Water SRF Affordability Criteria, and those funds are awarded on a readiness to proceed basis. The Bipartisan Infrastructure Law enables state Clean Water SRF programs to provide grants to eligible recipients. However, it should be noted that grant recipients are considered "subrecipients" for the purposes of Office of Management and Budget's grant regulations at 2 CFR Part 200. Assistance recipients receiving additional subsidy in the form of a grant are subject to additional cross-cutting Federal requirements that are not applicable to those receiving other forms of additional subsidy such as principal forgiveness.

The Department will continue to evaluate the advantages and disadvantages of offering grants as an additional subsidy beyond the State Fiscal Year 2023. At present, the

finalized Clean Water SRF continues to award principal forgiveness in lieu of grants for funding received under the Bipartisan Infrastructure Law.

Economic Impacts

26. COMMENT: The Department assesses that the proposed more stringent ammonia effluent limits resulting from the more stringent surface water quality standards will incur additional operations and capital costs in treatment plants with toxicity based WQBELs. The Department is correct that approximately 40 percent of the NJPDES permittees in the Raritan and Passaic watersheds will incur additional costs associated with more stringent ammonia effluent limits and that the other 60 percent, which have DO-based WQBELs, are unlikely to incur the increased costs. However, the Department has underestimated the severity of the cost impacts. The rulemaking does not account for the cost increases associated with supply chain disruptions related to COVID-19. The most recent dollar-year the Department uses in the cost impact discussion is 2019, when the annual inflation rate was 2.3 percent. It also cites cost estimates from 2006 and 2007, when inflation rates were similarly low. The 2022 inflation rate for the 12 months ending in June 2022 is 9.1 percent. To refine the estimates, the Department should consider running an ammonia potential evaluation for some larger systems. (4)

RESPONSE: The Department acknowledges that the cost estimates for various ammonia treatment techniques detailed in the notice of proposal's Economic Impact statement, which are valued in 2019 dollars, may not represent the reality of pricing in 2022. Therefore, the costs discussed in the notice of proposal's Economic Impacts statement at 54 N.J.R. 1251 are updated at Table 1 below in 2022 dollars to account for inflation.

Generally, the Department assumes a long-run average annual rate of inflation of two percent.

Regarding supply chain disruptions related to COVID-19, the Department acknowledges that there are supply chain issues that may delay equipment delivery. As discussed in the Response to Comments 18 and 19 above, the Department can establish a compliance schedule in NJPDES permits for new permit limits, along with interim requirements, in accordance with the regulations for Schedules of Compliance at N.J.A.C. 7:14A-6.4.

Table 1. Revised cost estimates related to ammonia treatment, at 54 N.J.R. 1251

Description	Original Cost At Time of Publication	Original Cost in 2019 Dollars	Updated Cost in 2022 Dollars
"In April 2020, methanol was priced in North America at approximately $1.08 per gallon by the Methanex Corporation (Methanex Corporation, 2020)."	$1.08 / Gal (2020 dollars)	NA	$1.76 / Gal (Valid October 1, 2022 – October 31, 2022)
"The cost of installing deep-bed filtration in existing BNR processes can range from approximately $178,000 to $263,000 (in 2019 dollars), depending on facility size (USEPA, 2007)."	$145,655 to $213,000 (in 2006 dollars)	$178,000 to $263,000	$202,000 to $299,000

"Regarding membrane bioreactors, one case study of all municipal wastewater treatment plants in Washington State estimated the annual capital, operation, and maintenance costs of using membrane bioreactors to achieve year-round Total Inorganic Nitrogen (TIN) concentrations of less than eight milligrams per liter (mg/L) to be approximately $2.3 million (in 2019 dollars) (Washington Department of Ecology, 2011)."	$2 million (in 2010 dollars)	$2.3 million	$2.6 million
"For small plants with an existing Modified Ludzack-Ettinger (MLE) process (4,000 gpd to 100,000 gpd), upgrades may include adding an anoxic basin, adding recirculating pumping from aeration basins to the new anoxic basin, adding deep-bed denitrification filters, and/or extending the Solids Retention Time to 14 days for additional conversion of ammonia to nitrate. According to the design	$28,062 to $80,000; $14,832 to $21,100 (in 2006 dollars)	$35,000 to $99,000; $18,000 to $26,000	$40,000 to $113,000; $21,000 to $30,000

capacity of each plant, the costs of installing such anoxic basins range from $35,000 to $99,000 (in 2019 dollars). Subsequent costs of operation and maintenance range from $18,000 to $26,000 (in 2019 dollars) based on the design capacity of the plant (USEPA, 2007)."			
"In May 2002, the capital cost of retrofitting the facility with an MLE process was $11,466,657 in 2006 dollars (USEPA, 2007)."	$11,466,657 (in 2006 dollars)	NA	$16.5 million
"In another case study from 2000, a Connecticut wastewater treatment plant with a design flow of 3.03 MGD spent $3,513,514 to retrofit with an MLE process (USEPA, 2007)."	$3,513,514 (in 2007 dollars)	NA	$5 million
"For facilities wishing to retrofit with Four-Stage Bardenpho processes, the following case studies apply: an upgrade was completed in August 2006 for a Maryland treatment plant of 2.0 MGD for $5,200,000 (USEPA, 2007)."	$5,200,000 (in 2006 dollars)	NA	$7.5 million

"A Connecticut treatment plant of 2.0 MGD had a Four-Stage Bardenpho process installed for $14,235,676 in 2003 (USEPA, 2007)."	$14,235,676 (in 2007 dollars)	NA	$16.5 million
Modified Ludzack-Ettinger Case study: Cox Creek Facility in Maryland	$11,466,657 (in 2006 dollars)	$14,541,325	$16.5 million
Modified Ludzack-Ettinger Case study: Derby Facility in Connecticut	$3,513,514 (in 2006 dollars)	$5,216,344	$5.9 million
Four-Stage Bardenpho case study: Hurlock Facility in Maryland	$5,200,000 (in 2006 dollars)	$6,594,327	$7.5 million
Four-Stage Bardenpho case study: Fairfield Phase 2 Facility in Connecticut	$14,235,676 (in 2006 dollars)	$19,779,621	$22.4 million

The commenter suggests that an ammonia removal potential analysis be performed for some larger systems. Given the complexity, and amount of time and resources required, the Department does not estimate potential pollutant reductions needed for wastewater treatment systems when proposing aquatic life criteria. Deriving WQBELs, and thereby estimating pollutant reductions needed for permittees, involves detailed site-specific information, such as the volume of wastewater discharged as effluent, the pollutant-specific

concentration in the effluent, the receiving water's flow rates, the pollutant specific upstream concentration, the applicable design flow of the receiving waterbody specified at N.J.A.C. 7:9B-1.5(c)2, and the applicable averaging periods as specified at N.J.A.C. 7:9B-1.14.

28. COMMENT: The Department is proposing to significantly reduce the ammonia criteria in freshwaters. Although Tables 4, 5, and 6 provide the proposed acute and chronic criteria, the Department has not clearly presented the impact that these changes will have on many NJPDES permits. For example, at a pH of 8.0 and temperature of 25 degrees C, the proposed acute criteria are 2.6 mg/L (acute) and 0.6 mg/L (chronic), while the existing criteria are 6.4 mg/L (acute) and 1.7 (chronic). Therefore, the proposed criteria at this assumed pH and temperature are 62 percent (acute) and 67 percent (chronic) less than the existing criteria. Such a drastic change in the freshwater criteria could lead to significant treatment plant upgrades being necessary to achieve compliance with new effluent limits. Such upgrades may have a great impact on user rates, which are minimized in the economic analysis of the proposal. (2)
29. COMMENT: There will be significant economic impacts to a small number of wastewater treatment plants when complying with the proposed freshwater ammonia criteria for aquatic life. The Department should have performed greater research identifying specific costs to treatment facilities. The impact of these costs may be borne not only by treatment facilities but also by ratepayers and homebuilders through connection fees. It is crucial, and mandated by the Administrative Procedure Act, that the Department identify to what

degree treatment facilities, ratepayers, and the housing industry may be affected by the substantial cost of compliance for certain facilities. (8)

RESPONSE TO COMMENTS 28 AND 29: Ambient surface water quality criteria are established at science-based levels necessary to protect the designated uses, such as maintenance of the natural and established biota, as required pursuant to 40 CFR 131.11(a)(1). The USEPA states, in its water quality standards guidance, that "factors such as technological feasibility, social and economic costs, and the benefits of achieving criteria levels are considered in a preceding step in which a waterbody's designated uses are established. Thus, these factors are not directly involved in the process of developing water quality criteria" (USEPA, 2023). These factors cannot be used when the State revises surface water quality criteria.

As stated in the notice of proposal Economic Impact, 54 N.J.R. at 1250(a), some wastewater treatment plants may experience economic impacts when complying with the adopted freshwater ammonia criteria for aquatic life. The Department estimates that approximately half of NJPDES permittees concentrated in the Passaic River and Raritan River watersheds may not be affected by more stringent WQBELs due to the adopted freshwater ammonia criteria for aquatic life. Due to the complexities involved in permit limit derivations (for example, there are often at least four types of numeric ammonia NJPDES permit limitations for a facility due to combinations of duration, statistic, and seasonality), and because there can be a mixture of underlying bases driving the ammonia criteria, it is not straightforward to deem that the proposed freshwater ammonia criteria will result in definitively more stringent or less stringent WQBELs. To perform a cost impact analysis of the affected facilities would involve developing WQBELs for each

plant, which involves several factors other than the applicable water quality criterion equation, as explained in the Response to Comment 27. A cost analysis would also involve evaluations of the treatment achievable for each facility, and information on plant design would be needed to estimate retrofitting for additional treatment by engineers, if deemed necessary.

The Department acknowledges that compliance costs may be high for some dischargers, and that these costs may be fully or partially passed on to ratepayers. However, regulated entities will likely have the ability to capitalize these improvements over long periods of time, thus, reducing the immediate direct impact to ratepayers and new home purchasers.

Water Quality Standards Variance

General

30. COMMENT: The Department should clarify whether the proposed WQS variance can be used to apply for an ammonia variance since ammonia is an aquatic life criterion. The Department should also clarify whether such a WQS variance would jeopardize aquatic life or habitat. (1)

RESPONSE: A WQS variance is defined in the adopted rules at N.J.A.C. 7:9B-1.4 as a time-limited designated use and criterion for a specific pollutant or pollutants that reflect the highest attainable condition during the term of the WQS variance. For the purposes of any such WQS variance, "pollutant" refers to any substance, as specified at N.J.A.C. 7:9B-1.14, which includes any pollutant with an aquatic life-based criterion, such as ammonia. When a WQS variance is approved, the underlying designated use and criteria applicable

to a waterbody do not change, but for implementation purposes, a permittee is allowed to meet a less stringent criteria for a limited time (variance duration). At the end of the applicable duration, the highest attainable condition (HAC) should be met. If, at the end of the duration, the HAC is not consistent with the underlying criteria and designated uses, the Department will re-evaluate the WQS variance (see also the Response to Comments 38 and 39).

A WQS variance is applicable for any substance with an aquatic life criterion, including ammonia. Such a variance would result in incremental improvements to the ambient water quality of the waterbody specific to the WQS variance. The Department expects that the underlying designated use and criteria protective of aquatic life in the associated waterbody would be attained at the end of the duration of the WQS variance.

31. COMMENT: The Department should clarify what is required pursuant to N.J.A.C. 7:9B-1.16(b)4vi to qualify for a WQS variance based on "[c]ontrols more stringent than those required by sections 301(b) and 306 of the Federal Act would result in substantial and widespread economic and social impact." The Department should also provide greater detail on how permittees can demonstrate widespread economic and social impact given the potential for costly upgrades to some treatment facilities. (8)

RESPONSE: As indicated in the notice of proposal Summary, 54 N.J.R. at 1247(a) and in the adopted rule text at N.J.A.C. 7:9B-1.16(c), a permittee requesting a WQS variance must demonstrate that the water quality standards cannot be met due to one or more of six factors, one of which is, "controls more stringent than those required by sections 301(b)

and 306 of the Federal Act would result in substantial and widespread economic and social impact."

Section 301(b) of the CWA requires the achievement of effluent limitations for point sources, other than publicly owned treatment works, which "require the application of the best available technology economically achievable which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants …" The application of the best available technology economically achievable is regulated in the NJPDES rules, N.J.A.C. 7:14A. At N.J.A.C. 7:14A-13.2, TBELs represent the minimum achievable reduction of conventional pollutants based on the best conventional pollutant control technologies, or the reduction of toxic pollutants based on the best available technology economically achievable. Section 306 of the CWA requires standards of performance to be established for the control of the discharge of "new sources," the controls of which "reflect the greatest degree of effluent reduction which USEPA determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives …"

Therefore, qualifying for a variance because "controls more stringent than those required by sections 301(b) and 306 of the Federal Act would result in substantial and widespread economic and social impact" refers to a situation in which the implementation of a TBEL is not adequate to achieve compliance with the designated use and criteria in the receiving water. This means that the best conventional or best available technology economically achievable at the time is unable to sufficiently reduce a pollutant's load in the discharge. Where a TBEL is inadequate, a WQBEL would be required to meet the designated use and criteria in the receiving water. If a more advanced treatment technology

that can achieve compliance with the WQBEL is needed, but would result in substantial and widespread economic and social impact, the Department may consider whether approval of a discharger specific variance is appropriate.

The determination of "substantial and widespread economic and social impact" can be made based on the USEPA's methodologies from the February 2023 Alternative 1 of its Clean Water Act Financial Capability Assessment Guidance (Guidance, USEPA, 2023), which supplemented the 1995 guidance referenced in the notice of proposal Summary, for consideration of economic impacts to public entities when making decisions on WQS variances (see also Summary of Agency-Initiated Changes below). Alternative 1 of the Guidance recommends the use of several metrics to demonstrate widespread social and economic impact, which include a residential indicator, which is based on the cost per household as a percentage of the mean household income (MHI), a financial capability indicator, and the lowest quintile poverty indicator score. Appendices A through C of the Guidance describe the calculation of these metrics for use in a variance submittal.

Applicability of Designated Uses and WQS Variance

32. COMMENT: The commenter contends that Ewing-Lawrence Sewerage Authority (ELSA) is not able to comply with the nitrate effluent limitation without the construction of additional treatment facilities, which will exceed $15 million. The commenter asserts that Assunpink Creek in the vicinity of ELSA's discharge point has been determined not suitable for a potable water intake. Therefore, the commenter infers that there is no possibility that the nitrate discharged from the ELSA facility will be consumed from the

Assunpink Creek, nor will it be consumed from any downstream waterway at a concentration representing a health risk.

Pursuant to N.J.A.C. 7:9B-1.15(d), the Assunpink Creek is classified as FW2 thereby designating it "for use as potable water supply," N.J.A.C. 7:9B-1.12, despite the recognized impediments to the Assunpink Creek never being used for that purpose. The commenter states that "the proposed amendments to the SWQS provide an opportunity for the Department to correct this unjust and extremely wasteful result. Specifically, the Department has proposed new N.J.A.C. 7:9B-1.16 to establish policies and a procedure for permittees to obtain a water quality standard variance from a designated use or criterion that may apply to the permittee individually or to a waterbody segment. As presently proposed, the amendments may not accommodate a request by ELSA for a variance. As a result, ELSA requests that the proposed amendments be revised to permit a variance: (1) from a waterbody's or waterbody segment's designated use as potable water supply where the permittee demonstrates that the waterbody, or a segment of a waterbody, is not presently used, and is not intended to be used during the term of the variance, as a source of potable water supply and (2) from a human health-based drinking water quality criterion where the permittee demonstrates that the concentration of the substance at the nearest downstream potable water supply intake does not exceed applicable drinking water standards. The proposed revisions are consistent with the Department's intent that the variance be used 'to address implementation challenges for situations when the water quality criterion for a substance or the designated use of a waterbody/waterbody segment(s) cannot be attained due to the lack of feasible treatment technologies ... or potential to cause widespread social and economic impact, if implemented.' The substantial cost for ELSA

to implement treatment technology to meet the effluent limitation for nitrate renders it infeasible given the lack of any human health benefit. Moreover, these circumstances are not unique to ELSA, as there are several other wastewater treatment facilities facing massive capital construction costs to meet effluent limitations for nitrate where no benefit to human health or the environment will be realized. The widespread economic impact that will result when tens of thousands of individual ratepayers are saddled with these expenses justifies the Department's adoption of the revisions proposed by ELSA." (6)

33. COMMENT: The following statement in the rule proposal should be clarified: "As specified at 40 CFR 131.14(a)(4), the Department will not adopt a WQS variance where the designated use and criterion can be achieved by implementing TBELs required at Sections 301(b) and 306 of the Federal Act." In accordance with the Federal rules, regulators may consider the affordability of technology to achieve water quality-based limits in certain instances. It is unclear whether a variance can be used for a nutrient such as nitrate in a situation where there is no downstream potable water use. As it is technologically feasible to treat nitrate in wastewater (albeit sometimes at a cost of tens of millions of dollars), does that prevent the use of the proposed WQS variance? (4)
34. COMMENT: The Department's intent that the variance be used "to address implementation challenges for situations when the water quality criterion for a substance or the designated use of a waterbody/waterbody segment(s) cannot be attained due to the lack of feasible treatment technologies … or potential to cause widespread social and economic impact, if implemented." is supported. However, the Department should further clarify when a variance can be utilized. The rulemaking states that a variance will not be adopted "where the designated use and criterion can be achieved by implementing TBELs

required at Sections 301(b) and 306 of the Federal Act." This should be clarified to mean that a variance can be granted for a nutrient, such as nitrate, where it is not impacting an existing drinking water use (or when/if a drinking water use is neither proposed nor feasible), does not have a TBEL, and complying with a stringent effluent limit would cause widespread economic impact. The Department should modify the proposed surface water quality standards to establish drinking water-based criteria only where such use occurs. (2)

35. COMMENT: The need for a variance could be greatly minimized if the Department did not designate all waterways in New Jersey as potential potable water sources, thereby imposing drinking water standards everywhere. This approach is overbroad, applies an unnecessary regulatory burden, and results in significant rate payer increases without an environmental benefit. There are many parameters that fit into this category, but nitrate is a perfect example. Reducing nitrate concentrations in waterways that have not impacted downstream water intakes results in no environmental improvement but often costs tens of millions of dollars in wastewater treatment plant improvements. (2)

36. COMMENT: A water quality standard waiver should be granted for waters where an existing use currently does not exist, such as waters designated for drinking water use where a drinking water intake is not present and cannot be installed due to physical conditions (water quantity, depth, etc.) (7)

RESPONSE TO COMMENTS 32, 33, 34, 35, AND 36: The adopted rule and variance procedures are based on the USEPA's recommended provisions and are not intended to remove a designated use of the waterbody. In accordance with N.J.A.C. 7:9B-1.5(a)3, it is the policy of the State that all freshwaters be protected as potential sources of public water supply. A WQS variance may be requested by a permittee or initiated by the Department.

For the Department to determine whether one or more of the conditions listed at N.J.A.C. 7:9B-1.16(b)4 are satisfied, any permittee requesting a new WQS variance must submit the information required pursuant to N.J.A.C. 7:9B-1.16(c). A WQS variance may be proposed to be adopted for a single permittee or multiple permittees. The USEPA must also approve any WQS variance adopted by the Department.

A WQS variance is not a waiver of the SWQS, nor does the Department issue a waiver of the SWQS in accordance with N.J.A.C. 7:9B or 7:14A. The SWQS at N.J.A.C. 7:9B provide the scientific foundation and the regulatory basis for protecting the water quality of all surface waters, including navigable waters, in accordance with the CWA, 33 U.S.C. §§ 1251 et seq., and the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. Additionally, the commenter's suggestion to allow WQS variance from a human health-based drinking water quality criterion where the permittee demonstrates that the concentration of the substance at the nearest downstream potable water supply intake does not exceed applicable drinking water standards, is contrary to both the Department's mixing zone policies at N.J.A.C. 7:9B-1.5(h) and the intended purpose of the New Jersey Water Quality Planning Act, N.J.S.A 58:11A-1 et seq., as well as the governing Federal authority at 40 CFR 131.10(k)3.

Adopted N.J.A.C. 7:9B-1.16(b)4 lists the six conditions, one or more of which must be met for a WQS variance to be considered. Even if the downstream waters, classified as FW2, do not include a drinking water intake, these waters are still designated for potable water supply; therefore, the human health-based criteria for all substances corresponding to the potable water supply designated use must be implemented according to the NJPDES rules at N.J.A.C. 7:9B-1.12(c). Nitrate is assigned a human health-based criterion of 10

mg/L for freshwaters. If a permittee can demonstrate that one or more of the six conditions at N.J.A.C. 7:9B-1.16(b)4 prevents compliance with a WQBEL issued for nitrate, then a WQS variance may be approved. When deciding upon the terms of the variance, the Department would quantify a highest attainable condition, which may be expressed as an interim ambient criterion for nitrate. At the end of the variance duration, the highest attainable condition must be achieved; afterwards, the permittee may apply for another variance for nitrate, evaluate if a compliance schedule is applicable, or may choose to comply with the original nitrate criterion.

The only situations in which compliance with the human health-based criteria for all substances according to the potable water supply designated use is not required is if the designated use is revised to a less restrictive use according to either N.J.A.C. 7:9B-1.10 or the Federal regulations at 40 CFR 131.10(g), or if a WQS variance is permitted according to the adopted provisions at N.J.A.C. 7:9B-1.16.

37. COMMENT: A water quality standard waiver should be granted for waters where an existing use currently does not exist, such as waters designated for recreation where primary/secondary contact recreation is not feasible due to hazardous conditions (shipping channels, industrial activities). In these cases, a permittee should not be required to submit the voluminous information identified, as the variance has nothing to do with treatment, and it should not be required to show economic hardship as a basis for obtaining a variance. In particular, a permittee should not be required to waste municipal resources to meet a water quality standard that is technologically feasible but does not restore a use because other factors continue to preclude the use. The Department should clarify that the ability to

achieve a more restrictive limitation should not be based on available local funds, or the ability to absorb additional costs into the rate base, since that would squander limited local resources on improvements that will have no actual ecological benefit. (7)

RESPONSE: All surface waters of the State are designated for either primary or secondary contact recreation. The secondary contact recreational waters, mostly located in the New York-New Jersey Harbor, were downgraded to secondary contact recreational use based on the UAA conducted by NJDEP (NJDEP, 1985). The recreational use in the NY-NJ Harbor was downgraded, but not removed, and these downgraded waters continue to be designated for secondary contact use. The Federal Regulations at 40 CFR 131.10(g), (h), and (j) require states to conduct a UAA if an established designated use is removed or changed, specifically for uses related to recreation in and on the water as specified at section 101(a)(2) of the CWA (33 U.S.C § 1251). Pursuant to 40 CFR 131.10(g), states may designate a use, or remove a use, that is not an existing use if it is demonstrated that attaining the use is not feasible because of one of the following six factors:

(1) Naturally occurring pollutant concentrations prevent the attainment of the use;

(2) Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met;

(3) Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;

(4) Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the waterbody to its original condition or to operate such modification in a way that would result in the attainment of the use;

(5) Physical conditions related to the natural features of the waterbody, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

In the secondary contact recreational waters, applicability of any of the above six factors cannot be demonstrated. This approach for determining eligibility for a UAA is applicable to not only the designated use of recreation, but any other designated use.

The commenter requests that the Department clarify that the ability to achieve stricter effluent limits should not be based on available local funds, as it would waste local resources on improvements that would have no actual ecological benefit. However, if a variance is adopted, an interim effluent condition or an interim designated use and standard for the purposes of deriving permit limits would be established that reflects the greatest pollutant reduction achievable with the current technology that is also economically feasible. In addition, a Pollutant Minimization Program (PMP) may be developed to target and eliminate non-point source pollution that may add to, as the commenter states, "other factors [that] continue to preclude the use." The notion that such measures would have no future actual ecological benefit is in contradiction to the USEPA's ruling at 80 FR 51019.

The commenter also suggests that a permittee should not be required to submit the voluminous information identified as part of the WQS variance, "as the variance has nothing to do with treatment, and it should not be required to show economic hardship as a basis for obtaining a variance." In accordance with the Federal Regulations at 40 CFR 131.14, the WQS variance provisions adopted by this rulemaking at N.J.A.C. 7:9B-1.16 will enable the Department to determine the highest attainable condition for a waterbody, consider an interim applicable water quality standard for the term of the WQS variance, and implement practicable methods (as defined at 40 CFR 131.3(n)) to make incremental improvements to the water quality of the waterbody, so that the underlying designated uses are attained at the end of the term of the WQS variance.

In summary, as indicated in the Response to Comments 32 through 36, the Department does not issue waivers of the SWQS. The commenter's suggestion that a permittee should not be required to waste municipal resources to meet a water quality standard that is technologically feasible but does not restore a use because "other factors continue to preclude the use" cannot be demonstrated without review of all the information required at 40 CFR 131.3 and N.J.A.C. 7:9B-1.16.

Duration of WQS Variance

38. COMMENT: The Department should consider a longer-term variance period of 10 years with a review every three years as part of the triennial review, rather than its proposed term of five years, which is rigid and somewhat arbitrary. Each variance must be reassessed as part of each triennial review of Water Quality Standards; there is no substantial justification for a duration of five years for a variance. Many states use the 10-year term. The proposed

rule is in error where it suggests that a variance will only last as long as it takes the discharger to achieve the Highest Attainable Criterion (HAC). The HAC level, by definition, does not achieve the applicable water quality standard, so the variance is still needed (or the Department must revise the designated use/applicable Water Quality Standard). (4)

39. COMMENT: The arbitrary five-year term that the Department proposes for a variance should be increased to at least 10 years. As a variance must be reassessed as part of each triennial review of Water Quality Standards, there is no justification for an arbitrary duration (five years) for a variance. Other states issue longer-term variances (10 years or more) and review it every three years as part of the triennial review. (2)

RESPONSE TO COMMENTS 38 AND 39: The Department will consider a request for WQS variance only after it has determined other implementation options, such as dilution allowances and compliance schedules are ineffective or not applicable.

As indicated in the notice of proposal Summary, 54 N.J.R. at 1246(a), the duration of a WQS variance can be only as long as necessary to achieve the HAC of the waterbody or waterbody segment, according to the Federal Regulations at 40 CFR 131.14(2)ii. The commenter is correct in stating that achieving the HAC does not equate to achieving the applicable water quality standard. The HAC may be expressed as an interim criterion or interim effluent condition that reflects the greatest pollutant reduction achievable with the pollutant control technologies installed at the time the Department adopts the WQS variance. The HAC, when expressed as an interim criterion or interim effluent condition, is intended to achieve the water quality that is closest to the underlying designated use and criterion.

A WQS variance duration may be greater than five years if the Department determines that the duration can be justified and the USEPA approves the duration. However, as recommended in the Federal regulations at 40 CFR 131.14(v), WQS variances with a term greater than five years must be reevaluated "no less frequently than every five years after EPA approval of the WQS variance, and the results of such reevaluation must be submitted to EPA within 30 days of completion of the reevaluation." The purpose of the review every five years is to evaluate whether the variance applicant was able to implement a Pollutant Minimization Plan (if applicable) and achieve incremental progress in water quality to meet the HAC. It is also necessary for the variance applicant to identify whether any new pollutant control technologies are available and submit an updated Pollutant Minimization Plan (if applicable) for the subsequent five-year period. Upon submittal of the reevaluation, the Department may determine if the original HAC identified at the time of the variance adoption is applicable, or if a more stringent HAC that is closer to the underlying criterion may be applied due to technological advances in pollutant control or pollutant source control strategies, whichever HAC is more stringent.

If the submission of the five-year reevaluation is in accordance with the requirements at N.J.A.C. 7:9B-1.16(c), the Department would approve and authorize a WQS variance for an additional five years, or until the term of the variance concludes, whichever is earlier.

Summary of Agency-Initiated Changes:

The Department is modifying N.J.A.C. 7:9B-1.16(b)4vi and (c)6 to include a reference to the 2023 USEPA Clean Water Act Financial Capability Assessment Guidance (as supplemented and amended), published in February 2023. The notice of proposal included the 1995 Interim

Economic Guidance for Water Quality Standards which is being supplemented by the USEPA's 2023 guidance referenced above to determine "substantial and widespread economic and social impact" to any permittees submitting a water quality standards variance. Additionally, the Department is replacing the website address for the 1995 Interim Economic Guidance for Water Quality Standards at N.J.A.C. 7:9B-1.16(c)6 with the USEPA's document number, EPA-823-B-95-002.

Federal Standards Statement

N.J.S.A. 52:14B-1 et seq., requires that State agencies that adopt, readopt, or amend State regulations that exceed any Federal standards or requirements include in the rulemaking document a Federal standards analysis.

The Federal Act, 33 U.S.C. §§ 1251 et seq., as amended by the Water Quality Act of 1987 (PL 100-4) requires the establishment of water quality standards for all surface waters of the United States. (The Water Quality Act of 1987 amended the Federal Act to require the adoption of criteria for toxic pollutants identified as causing or contributing to an impairment of a waterbody's designated use(s).) Individual states are given primary responsibility for developing and adopting SWQS applicable to their waters. The USEPA is responsible for overseeing and approving state water quality standards, providing guidance on the content of the standards, and developing water quality criteria guidance documents.

Key elements of the Department's SWQS program that are required pursuant to the Federal Act are: a classification system establishing designated beneficial uses of the waters; ambient water quality criteria necessary to protect those uses; minimum uses to be attained, which reflect the fishable and swimmable goals of the Federal Act; and antidegradation policies and implementation procedures to prevent water quality from deteriorating. Furthermore, the

Federal Act includes provisions that require the USEPA to promulgate superseding Federal standards where the USEPA concludes that a state's standards are not consistent with the requirements of the Federal Act, or where Federal requirements are necessary to meet the requirements of the Federal Act.

The adopted amendments to the SWQS are required by and consistent with the Federal statutes, regulations, and guidance.

N.J.A.C. 7:9B-1.4 contains definitions of terms used within the SWQS. The majority of these definitions are identical to those used by the USEPA in either the Federal water quality standards regulation at 40 CFR 131.3 or in the glossary of the USEPA's guidance document for states, the *Water Quality Standards Handbook: Second Edition* (November 2017, EPA-823-B-94-005a).

N.J.A.C. 7:9B-1.5 establishes the policies applicable to the protection and enhancement of surface water resources throughout the State. These include general, interstate waters, general technical (including mixing zone policies), antidegradation, water quality-based effluent limitation, whole effluent toxicity requirements, and nutrient policies. The general policies and interstate waters policies at N.J.A.C. 7:9B-1.5(a) and (b) are either exempt from Federal standards, or identical to language found in the Federal Water Quality Standards Regulations (see 40 CFR 131). The adopted revisions to N.J.A.C. 7:9B-1.5(c) are consistent with the Federal requirements and, therefore, no further analysis is required.

N.J.A.C. 7:9B-1.14 contains the surface water aquatic life and human health protection criteria (both narrative statements and numerical values) for waters classified as PL, FW2, SE, and SC. New Jersey has adopted criteria for pollutants to protect the aquatic biota and humans from detrimental effects from exposure to these pollutants in surface waters of the State.

N.J.A.C. 7:9B-1.14 also states that the surface water criteria for the mainstem Delaware River and Bay are as contained in the Delaware River Basin Commission regulations. The Federal Regulations at 40 CFR 131.11(a)(1) require states to adopt water quality criteria that protect the designated uses. Pursuant to 40 CFR 131.11(b)(1)(i)-(iii), states should establish numerical values based on Federal Act section 304(a) guidance or 304(a) guidance modified to reflect site-specific conditions.

The adopted bacterial quality criteria are based on the USEPA's recommended 2012 RWQC, which rely on the latest research and science, including studies that show a link between illness and fecal contamination in recreational waters. The adopted criteria are based on the USEPA recommendations and, therefore, no further analysis is required.

The adopted amendments to freshwater ammonia criteria are based on the USEPA 2013 recommendations. The target sensitive species that were used for ammonia criteria development are present in the waters of New Jersey. Therefore, no further analysis is required.

Adopted new N.J.A.C. 7:9B-1.16, regarding WQS variances, is consistent with the Federal Regulations at 40 CFR 131.14. Thus, no further analysis is required.

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Full text of the adoption follows (additions to proposal indicated in boldface with asterisks ***thus***; deletions from proposal indicated in brackets with asterisks *[thus]*):

SUBCHAPTER 1. SURFACE WATER QUALITY STANDARDS

7:9B-1.16 Water quality standards variances

(a) (No change from proposal.)

(b) The WQS variance policies are, as follows:

1. - 3. (No change from proposal.)

4. A permittee requesting a WQS variance must demonstrate, to the satisfaction of the Department, that the water quality standards cannot be met due to one or more of the following conditions:

i. – v. (No change from proposal.)

vi. Controls more stringent than those required by sections 301(b) and 306 of the Federal Act would result in substantial and widespread economic and social impact***, as determined in accordance with the USEPA Interim Economic Guidance for Water Quality Standards (EPA-823-B-95-002), Clean Water Act Financial Capability Assessment Guidance (EPA-800-B-21-001), and as supplemented and amended***;

5.-7. (No change from proposal.)

(c) A permittee requesting a WQS variance to satisfy one of the conditions listed at (b)4 above must submit the following:

1.-5. (No change from proposal.)

6. Information required to determine the affordability of such technology using the USEPA Interim Economic Guidance for Water Quality Standards *[(see https://www.epa.gov/sites/production/files/2016-03/documents/econworkbookcomplete.pdf]*****

(EPA-823-B-95-002), Clean Water Act Financial Capability Assessment Guidance (EPA-800-B-21-001), as supplemented and amended;

7.-11. (No change from proposal.)

(d)-(e) (No change from proposal.)