
ENVIRONMENTAL PROTECTION
LAND USE MANAGEMENT

Ground Water Quality Standards	
Proposed Amendments:	N.J.A.C. 7:9C-1.4
Proposed Repeal and New Rule	N.J.A.C. 7:9C-1.8
Authorized By:	Lisa P. Jackson, Commissioner Department of Environmental Protection
Authority:	N.J.S.A. 13:1D-1 et seq., 58:10A-1 et seq., and 58:11A-1 et seq.
Calendar Reference:	See summary below for explanation of exception to calendar requirement.

DEP Docket No: 13-07-06/89

Proposal Number:

A Public Hearing on the proposal will be held as follows:

August 8, 2007
1:00 P.M. to 5:00 P.M. or close of testimony, whichever occurs first,
at
Department of Environmental Protection
401 East State Street
Public Hearing Room
First Floor
Trenton, NJ 08625

Submit written comments by (60 days after publication) to:

Janis Hoagland, Esq.
Office of Legal Affairs
Attn: DEP Docket Number 13-07-06/89
Department of Environmental Protection
401 East State Street
P.O. Box 402
Trenton, New Jersey 08625-0402

The New Jersey Department of Environmental Protection (Department) requests that commenters submit comments on disk or CD as well as on paper. The Department prefers Microsoft Word 6.0™ or above. Macintosh ™ formats should not be used. Each comment should be identified by the applicable N.J.A.C. citation, with the commenter's name and affiliation following the comment.

Copies of this rule proposal can be viewed or downloaded electronically from the Department's Web site at http://www.state.nj.us/dep/rules.

The agency proposal follows:

Summary

As the Department has provided a 60-day comment period on this notice of proposal, this notice is excepted from the rulemaking calendar requirement pursuant to N.J.A.C. 1:30-3.3(a)5.

The Department is proposing amendments to the definitions and to repeal and replace the antidegradation policy in the Ground Water Quality Standards (GWQS) at N.J.A.C. 7:9C in order to clarify the intent of the policy, to modify and expand the applicability of the policy to other pollutant sources, and to better implement the policy in certain classes of ground water, in order to adequately protect the designated uses of the State's ground waters.

Existing Rule

The GWQS are necessary to achieve the policy of the New Jersey Water Pollution Control Act (the Act), which is "to restore, enhance and maintain the chemical, physical and biological integrity of [the State's] waters, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial and other uses of water" (N.J.S.A. 58:10A-2). Under the GWQS, the Department designates ground water classifications throughout the State, assigns designated uses of the ground water within each classification, and establishes numerical water quality criteria to support those uses.

The GWQS at N.J.A.C. 7:9C-1.5(c) establish three major classes of ground water: Class I Ground Water of Special Ecological Significance, Class II Ground Water for Potable Water Supply, and Class III Ground Water With Uses Other Than Potable Water Supply. The GWQS further define the primary, secondary and other uses of these classes of ground water at N.J.A.C. 7:9C-1.5(d) through (f), and establish the antidegradation limits that correspond with each class and subclass at N.J.A.C. 7:9C-1.8.

Class I ground water: Existing N.J.A.C. 7:9C-1.7(a) and (b) establish the ground water quality criteria as natural quality for each constituent in Class I-A and Class I-PL (Pinelands Preservation Area) ground water, and as background water quality for Class I-PL (Pinelands

Protection Area) ground water. These ground water quality criteria are not proposed for amendment at this time.

Class II ground water: For Class II-A ground water, where existing ground water quality is better than the ground water quality criteria, the existing rule at N.J.A.C. 7:9C-1.8(b) allows degradation of ground water quality up to 50 percent of the available decrement between the background water quality for a given constituent and the ground water quality criterion. Background water quality is defined at N.J.A.C. 7:9C-1.4 as "… the concentration of constituents in ground water which is determined to exist directly upgradient of a discharge but not influenced by the discharge …" This means that, for Class II ground water, the existing antidegradation policy allows a new or expanded discharge to degrade ground water quality by as much as half of the available capacity. For example, if the upgradient ambient ground water concentration of constituent X is 2 mg/L, and the ground water quality criterion for constituent X is 10 mg/L, then a new discharge to Class II ground water would be allowed, under the existing rule, to increase the ambient ground water quality concentration of constituent X from 2 mg/L to 6 mg/L.

Class III ground water: The existing rule does not require a demonstration of compliance with the antidegradation policy for a new or expanded discharge to Class III ground water. Currently, an applicant for a new or expanded discharge is allowed to demonstrate that the ground water quality criteria will be met at the property boundary using a dilution model. This means that, where background water quality is better than the ground water quality criteria, the

existing rule allows new and expanded discharges to degrade the ground water until it reaches the same concentration as expressed by the criteria. Using the previous example, if the current ambient ground water concentration of constituent X is 2 mg/L, and the ground water quality criterion for constituent X is 10 mg/L, then a new discharge to Class III ground water would be allowed, under the existing rule, to increase the ambient ground water quality concentration of constituent X from 2 mg/L to 10 mg/L.

For Class II-B and Class III ground water, where existing ground water quality is better than the ground water quality criteria, the existing rule at N.J.A.C. 7:9C-1.8(c) through (e) allows degradation of ground water quality up to the applicable criteria, since the antidegradation limits for these classes of ground water are equal to the ground water quality criteria established under N.J.A.C. 7:9C-1.7(d) through (f).

Notice Seeking Comment on Certain Topics Related to the GWQS

On October 4, 2004, the Department proposed to readopt and recodify the GWQS at N.J.A.C. 7:9C with amendments (see 36 N.J.R. 4374(b)). The GWQS were readopted and recodified effective October 4, 2005 (see 37 N.J.R. 4226(b)), at which time notice was given that the Department also intended to propose additional amendments to the GWQS in the future. Concurrent with the notice of readoption, the Department published a notice in the New Jersey Register seeking public comment on certain topics related to the GWQS, including classification and designated uses of ground water, the antidegradation policy, and the procedures for

reclassification of ground water (see the public notice entitled "Notice of Opportunity for Public Comment on Certain Topics Related to the Ground Water Quality Standards" published at 36 N.J.R. 4400(a)). Comments were received from eight individuals regarding these topics. Comments received regarding the antidegradation policy in response to the public notice are summarized below.

Commenters stated that the current antidegradation policies are not sufficiently protective and not adequately implemented; however, one commenter stated that the existing antidegradation approach adequately protected the designated uses. The existing policy to establish antidegradation limits was limited to regulated point sources. Residential development on septic systems was not reviewed. Commenters suggested that the Department consider a more stringent antidegradation policy for septic systems. In addition, commenters suggested that the Department revise downward the current policy of allocating fifty-percent of the available decrement between background concentration and the 10 mg/L water quality criterion for nitrate and maintain nitrate levels at 2 mg/L in Category One watersheds and outstanding natural areas. Commenters did not support mandating best available treatment technology in lieu of conducting an antidegradation review. One commenter felt that technology that met the drinking water criteria should be more than adequate to protect ground water quality.

Proposed Amendments and New Rule

The Department reviewed the comments received related to the antidegradation policy and is now proposing to repeal and replace the antidegradation policy at N.J.A.C. 7:9C-1.8. The Department determined that antidegradation should apply to more than just those discharges that require a New Jersey Discharge Elimination System (NJPDES) permit and that the policy of allowing ground water quality to automatically be lowered to accommodate new and/or expanded discharges should be revised. While one commenter suggested that the nitrate concentrations in Category One watersheds and outstanding natural areas should be maintained at 2mg/L, the Department determined that natural areas are classified as Class I-A ground water and are essentially non-degradation waters. In addition, since Category One designations are made at the stream level and are not watershed-based, the Department did not consider this recommendation to be practical. The Department also determined that it was not reasonable to establish a Best Available Treatment level since mandating a minimum treatment level would result in unnecessary and unjustified costs. In addition, the suggestion that the Department should only require treatment necessary to meet the drinking water standards was also rejected because while this approach would protect the drinking water use, it does not minimize the lowering of ground water quality.

This proposal is limited in scope to the antidegradation policy and implementation provisions, along with related changes to the definition section. While this rule proposal does not include amendments to upgrade the ground water classifications, as recommended by several

commenters, the proposed antidegradation provisions will strengthen protections for environmentally sensitive resources while balancing the need to allow for growth.

The following is a summary of the proposed amendments and new rule.

N.J.A.C. 7:9C-1.4 Definitions

The Department has determined that defining the term "antidegradation" separate from the statement of antidegradation policy is unnecessary and confusing and is proposing to delete the definition of antidegradation at N.J.A.C. 7:9C-1.4. The term “nondegradation,” which was included in the definition of antidegradation, does not require a separate definition under N.J.A.C. 7:9C-1.4 as it is used only in N.J.A.C. 7:9C-1.7 (which is not proposed for amendment) and is adequately defined there for the purposes of that section.

The Department also proposes to delete the definition for “antidegradation limit” as the term would no longer be used in the rules, as proposed. Under the existing rule, antidegradation limits are used to implement the antidegradation policy; however, these limits are applied only through NJPDES discharge to ground water permits. Antidegradation limits are not applied to ground water discharges that did not require such permits (such as septic systems). Under the proposed rule, maximum loads discharged to the property, expressed as concentrations of specific constituents, will be used to implement the new antidegradation policy for Class II and Class III ground water. For Class I ground water and for ground water in the Highlands

preservation area, the new antidegradation policy will be implemented by maintaining natural water quality conditions.

The Department is proposing to add a definition for "HUC 11," which is used in the new antidegradation policy at N.J.A.C. 7:9C-1.8(b)3. The term "HUC 11" or "hydrologic unit code 11" refers to a specific set of hydrologic areas, frequently referred to as watersheds, as delineated within New Jersey by the United States Geological Survey. The hydrologic code system starts with the largest possible drainage area; progressively smaller subdivisions of the drainage area are delineated and numbered in a nested fashion. A drainage area or watershed with a hydrologic unit code designation with 11 numbers, or "HUC 11," contains several smaller drainage areas or subwatersheds with a hydrologic unit code designation with 14 numbers, or "HUC 14." There are currently 151 "HUC 11" watersheds delineated in New Jersey, ranging in size from 0.1 to 143 square miles, with an average size of 52 square miles.

N.J.A.C. 7:9C-1.8 Antidegradation policy

N.J.A.C. 7:9C-1.8 establishes the Department's antidegradation policy and sets forth how the policy is applied within the various ground water classification areas. The Department has determined that the existing antidegradation policy needs to be clarified and that the prescribed implementation of the policy must be modified and expanded to extend the applicability to other pollutant sources in order to adequately protect the designated uses of the State's ground waters. Therefore, the Department is proposing to repeal and replace the GWQS rule at N.J.A.C. 7:9C-1.8.

The proposed new rule includes a statement of the antidegradation policy at N.J.A.C. 7:9C-1.8(a) and establishes implementation mechanisms for the policy at N.J.A.C. 7:9C-1.8(b). The policy statement at proposed N.J.A.C. 7:9C-1.8(a) clarifies and emphasizes that the intention of the antidegradation policy is to protect existing ground water quality from significant degradation. This means that existing ground water quality that is better than the applicable ground water quality criteria shall not be degraded to the criteria but shall be maintained at a better water quality within a specified range pertaining to the different ground water classifications. Furthermore, where existing ground water quality is already exceeding the GWQS, no further degradation shall be allowed. The proposed new rule would delete the antidegradation limits established at existing N.J.A.C. 7:9C-1.8(b) through (e) and replace them with proposed N.J.A.C. 7:9C-1.8(b)1 through 5, which would establish the water quality conditions to be maintained that correspond to the different ground water classifications and their designated uses.

Under proposed N.J.A.C. 7:9C-1.8(b)1, the Department shall not approve any new or expanded discharge to Class I ground water if the discharge would degrade the natural quality of the ground water, including discharges from domestic treatment works and industrial treatment works, unless the activity associated with the discharge is in conformance with the Pinelands Commission's Comprehensive Management Plan, specifically, N.J.A.C. 7:50-6. This is consistent with the ground water quality criteria established for this classification of ground water under the existing rules at N.J.A.C. 7:9C-1.7(b). Thus, all new or expanded discharges to

Class I ground water would be required to maintain existing ground water quality at natural or background water quality concentrations, depending on the ground water classification.

The existing rule does not include a separate classification for ground water in the Highlands preservation area; however, surface and ground water in this region of the State is afforded special protection under the Highlands Water Protection and Planning Act (N.J.S.A. 13:20-1 et seq.). Therefore, the Department is proposing N.J.A.C. 7:9C-1.8(b)2, which would prohibit any new or expanded discharge to ground water in the Highlands preservation area that is not in conformance with the Highlands Water Protection and Planning Act rules at N.J.A.C. 7:38. The Highlands Water Protection and Planning Act rules are intended to prevent the degradation of water quality, or to require the restoration of water quality, and to protect ecological uses from individual, secondary, and cumulative impacts, in consideration of deep aquifer recharge available for dilution.

Both the Pinelands Commission's rules covering activities occurring in the Pinelands Preservation and Protection Areas and the Department's rules for the Highlands preservation area provide adequate implementation mechanisms for ensuring compliance with the antidegradation policy of the GWQS by imposing strict requirements; therefore, no additional antidegradation compliance requirements for these areas are proposed herein as part of the proposed amendments and new rule.

The Department has determined that the antidegradation limits established under existing N.J.A.C. 7:9C-1.8(b) for Class II-A ground water should be replaced in order to protect ground water quality from the potential adverse impacts of new and expanded treatment works that discharge to ground water. The Department has determined that the new antidegradation policy should be applied equally to Class II-A, Class II-B, and Class III ground water, in order to comply with the antidegradation policy's goal of protecting existing ground water quality from significant degradation. The requirements for demonstration of compliance with the antidegradation policy for Class II and Class III waters are set forth at N.J.A.C. 7:9C-1.8(b)3, 4 and 5. The demonstration will vary based on the type of discharge and whether the discharge is regulated by the NJPDES program.

Domestic treatment works

The proposed amendments and new rule would replace antidegradation limits with procedures for demonstrating compliance with the antidegradation policy and would apply to all new and expanded discharges to ground water from two main types of wastewater treatment facilities, domestic treatment works and industrial treatment works. Distinction between the two types of treatment works is necessary to address the different compositions of wastewater discharged by these wastewater treatment facilities.

The term "domestic treatment works" is defined in the NJPDES rules at N.J.A.C. 7:14A-1.2 and generally includes sanitary wastewater treatment systems with discharges to ground

water that exceed 2,000 gallons per day and require a NJPDES DGW permit pursuant to N.J.A.C. 7:14A. Sanitary wastewater includes wastewater that originates from bathrooms, toilet facilities, home laundries and kitchens that are predominantly the result of natural human waste elimination associated with bodily function and food preparation. Examples of domestic treatment works include centralized wastewater treatment systems for residential developments, apartment complexes, commercial office buildings, or strip malls. Domestic treatment works also include individual subsurface sewage disposal systems (ISSDS), commonly referred to as "septic systems", that each serve a single family home. ISSDS are limited in capacity to handle a maximum of 2000 gallons per day of residential wastewater. Other domestic treatment works treat more than 2000 gallons per day of residential wastewater. Wastewater generated by something other than routine household activities or containing something other than residential wastewater is regulated under the NJPDES rules as an industrial treatment works.

For discharges to ground water from domestic treatment works, the Department has determined that the evaluation of compliance with the antidegradation policy is ideally conducted at two scales: the regional scale and the site-specific scale. Evaluation on a regional scale allows for consideration of secondary and cumulative impacts on a watershed basis, such as the impact of large-scale development on the ground water system associated with a HUC 11 watershed. Regional impacts are ideally addressed through the development of a comprehensive wastewater management plan pursuant to the proposed WQMP rules at N.J.A.C. 7:15, where options may be evaluated and impacts adjusted so that ground water quality is maintained.

The Department is proposing at N.J.A.C. 7:9C-1.8(b)3 to establish 2 mg/L nitrate as representative of the existing ground water quality Statewide, for the purpose of evaluating compliance with the antidegradation policy at N.J.A.C. 7:9C-1.8(a). The Department has also determined that nitrate is an appropriate surrogate for the constituents in domestic wastewater on which to base a determination of compliance with the proposed antidegradation policy for new and expanded domestic treatment works that discharge to Class II and Class III ground water. Nitrate is one of several constituents that is found in relatively large and predictable amounts in domestic wastewater (defined at N.J.A.C. 7:14A-1.2 as "… the liquid waste or liquid borne wastes discharged into a domestic treatment works"). Further, in establishing the nitrate concentration that would represent existing ambient ground water quality Statewide, the Department considered various literature sources and evaluated data sets regarding background levels for nitrate. The determination that nitrate is an appropriate surrogate and that 2 mg/L concentration is representative of existing ground water quality for the purposes of implementing antidegradation is consistent with the Department's approach in the Highlands Water Protection and Planning Act Rules, N.J.A.C. 7:38, and the proposed WQMP rules, N.J.A.C. 7:15. Additional information related to this determination is set forth in the summary of the proposal of the Water Quality Management Planning Rules (WQMP) published in the New Jersey Register at 39 N.J.R. 1870.

Under the proposed WQMP amendments, the numerical equivalent (i.e., 2 mg/L nitrate) for the Statewide average existing ground water quality will serve as the basis for conducting build-out analysis for areas outside of an approved sewer service area (as defined in those rules).

This means that the Department will not approve a plan amendment for any new and expanded domestic treatment works discharging to Class II or Class III ground water unless the Department first determines that the existing ground water quality of 2 mg/L nitrate will be maintained on a HUC 11 basis. This would not be the case in the Highlands preservation area where more stringent requirements apply, in accordance with the Highlands Water Protection and Planning Act rules at N.J.A.C. 7:38-3.2. In proposing N.J.A.C. 7:9C-1.8(b)3, the Department is coordinating the antidegradation policy in the GWQS with the proposed amendments to the WQMP rules.

Under the proposed rule at N.J.A.C. 7:9C-1.8(b)3, discharges from new or expanded domestic treatment works to Class II and Class III ground water, except for those in the Highlands preservation area (which would require approval under the Highlands Act Rules, as explained above for Class I ground water), that require a plan amendment pursuant to the WQMP rules at N.J.A.C. 7:15, would not be permitted to exceed a total nitrate load to the HUC 11 watershed of 2 mg/L nitrate, when load is expressed as a concentration.

The wastewater management planning process required for projects that trigger plan amendments under the proposed WQMP rules at N.J.A.C. 7:15 is the most appropriate mechanism for evaluating the regional impacts of ground water discharged from new and expanded domestic treatment works, since it provides a more comprehensive review of the long-term, cumulative impacts to ground water from wastewater discharges associated with future development, as well as those regulated by the NJPDES permit program. This approach also

enables municipalities to adequately plan for the volume of wastewater proposed for disposal for the entire planning area over the specified planning horizon. An evaluation of the regional and cumulative impacts of wastewater discharges on ground water quality is not feasible under the site-specific permit review for individual treatment works.

Under the proposed amendments to the WQMP rules, the build-out analysis required pursuant to proposed N.J.A.C. 7:15-5.25 would use a planning standard of 2 mg/L nitrate to determine how much development relying on ground water disposal of wastewater can be supported on a HUC 11 basis within the planning area. Since the planning standard proposed in the WQMP rules is the existing Statewide average ground water concentration for nitrate (i.e. 2 mg/L), this approach ensures that the existing ground water quality will be maintained on a regional basis, thus ensuring compliance with the proposed antidegradation policy.

However, a regional evaluation would not address site-specific impacts. This is accomplished under the proposed rule by also requiring a demonstration of compliance with the antidegradation policy on a site-specific basis through the NJPDES discharge to ground water permit process. Under proposed N.J.A.C. 7:9C-1.8(b)4, discharges from new or expanded domestic treatment works to Class II and Class III ground water, except for those in the Highlands preservation area (which would require approval under the Highlands Act Rules, as explained above for Class I ground water), that require a NJPDES discharge to ground water permit pursuant to N.J.A.C. 7:14A, would not be permitted to exceed a total nitrate load to the property served by the treatment works, of 6 mg/L nitrate, when load is expressed as a

concentration. Six mg/L equals half the sum of the State-wide average nitrate concentration in ground water of 2 mg/L and the nitrate ground water quality criterion of 10 mg/L. (The nitrate ground water quality criterion is set forth in these rules in Appendix Table 1 as 10,000 ug/L, which is equivalent to 10 mg/L.)

The term "property" is defined under the NJPDES rules at N.J.A.C. 7:14A-1.2 to include all contiguous land with a common interest or purpose, such as common ownership, common plan of development of sale, shared infrastructure. Evaluation on a property scale allows for consideration of site-specific effects, such as the potential impact of one domestic treatment works on an adjacent property owner's potable well, and identification of the proper type, size and location of the wastewater treatment system based on the physical constraints of the property in question (e.g., soils, proximity to wells, and other discharges).

The NJPDES rules at N.J.A.C. 7:14A-7.2(b) require all persons who discharge to ground water, except those exempt under N.J.A.C. 7:14A-7.4, to obtain a NJPDES permit. N.J.A.C. 7:14A-7.6 requires that all permits include provisions to ensure that the discharge does not contravene the GWQS. The NJPDES rules at N.J.A.C. 7:14A-7 establish a process for evaluating the impact from industrial discharges, as well as sanitary wastewater discharges in excess of 2,000 gallons per day (gpd), that require a NJPDES-discharge to ground water (DGW) permit. The NJPDES-DGW permit process focuses the regulatory review on the projected wastewater plume.

The NJPDES rules at N.J.A.C. 7:14A-7.6(a) specifically require NJPDES-DGW permits to include provisions that will ensure compliance with the GWQS. Under the new rule, the NJPDES-DGW permit process will require the applicant to demonstrate that, based on the projected volume of wastewater to be generated and the level of treatment proposed, there is sufficient property on the site to maintain ground water quality and meet ground water quality criteria. Applicants who demonstrate compliance with the antidegradation policy under proposed N.J.A.C. 7:9C-1.8(b)4 may either treat the wastewater to meet the ground water quality criteria at the point of discharge or demonstrate that the ground water quality criteria will be met prior to the property boundary using a dilution model. Background water quality used in determining NJPDES effluent limitations is highly variable and greatly affected by surrounding land use as well as upstream ground water impacts. The NJPDES-DGW permit also requires effluent monitoring and/or ground water monitoring to ensure compliance with the GWQS. Should ground water monitoring indicate that actual attenuation differs from predicted attenuation, the NJPDES-DGW permit, as required by N.J.A.C. 7:14A-7.8, includes provisions to address contraventions of the GWQS, including if necessary, that the discharge cease until such time as the permittee can demonstrate compliance with the applicable ground water quality criteria. These provisions of the NJPDES rules would ensure compliance with the proposed antidegradation implementation provisions as well.

While existing ground water quality would be a consideration in both proposed N.J.A.C. 7:9C-1.8(b)3 and 4, the actual ground water quality conditions that must be achieved in order to comply with the antidegradation policy as proposed would be different for the regional analysis

than for the site-specific analysis. For the regional analysis conducted under the plan amendment process, the proposed antidegradation policy would require that existing ground water quality be maintained on a HUC 11 basis at the Statewide average concentration of 2 mg/L nitrate. This analysis factors in the dilution that would occur over an entire HUC 11 watershed. For the site-specific analysis conducted through the NJPDES permit process, the antidegradation policy would require that the total nitrate load to the property served by the wastewater treatment facility, when expressed as a concentration, shall not exceed 6 mg/L nitrate. This analysis factors in the dilution that would occur over the entire property, which is generally a much smaller area than a HUC 11 watershed. These numbers represent theoretical dilution calculations based upon dilution of rainfall recharge to the underlying ground water of an entire HUC 11 watershed (for planning review), or the entire property (for permitting review), resulting from the proposed discharge.

Where a new or expanded discharge from a domestic treatment works requires both a plan amendment and a NJPDES discharge to ground water permit, both site-specific and regional evaluations would be conducted to ensure that compliance with the antidegradation policy is achieved by meeting 2 mg/L nitrate on a HUC 11 watershed basis and by also meeting 6 mg/L nitrate on a site-specific basis.

Under either evaluation, if the discharge to ground water from the proposed domestic treatment works does not comply with the antidegradation policy, the applicant may be required to reduce the number of development units to be served by the facility, reduce the size of the

facility, change the location of the wastewater discharge, or change the level or type of wastewater treatment.

Where WMPs are not current, as required by the WQMP rules at N.J.A.C. 7:15-5.23, the Department has not evaluated the cumulative impact of future development to be served by ISSDS on ground water quality. Under the recently proposed WQMP rules at N.J.A.C. 7:15, projects that are proposed to be served by ISSDS with a combined flow of more than 2,000 gallons per day (six or more residential units) will be deemed inconsistent with the areawide WQMP where WMPs are not current. A revision or amendment to the areawide WQMP is required to make these projects consistent. The proposed WQMP rules at N.J.A.C. 7:15-3.5(b)4 allow certain proposed projects served by ISSDS involving less than 100 acres and generating less than 8,000 gallons per day of wastewater to proceed as revisions to the areawide WQMP where a WMP is out of date and where the Department determines that the project will not result in a significant individual or cumulative impact to environmentally sensitive areas or other natural resources. Because a comprehensive WMP has not been completed in these areas, the Department cannot conclude that the antidegradation policy as proposed to be implemented in these rules at N.J.A.C. 7:9C-1.8(b)3, has been met on a HUC 11 basis. Further, because these projects are small in scope relative to the HUC 11 watershed, it would be unfairly burdensome to require the applicant to assess the full buildout of the HUC 11 to ensure that the proposed antidegradation policy is met. To reduce the burden on the applicant while maintaining consistency with the antidegradation implementation requirements of this proposed rule, the Department will, under the proposed WQMP rules, apply the 2 mg/L nitrate planning target to

projects that qualify as a revision on a site-by-site basis. Therefore, if each project that qualifies as a revision meets the 2 mg/L nitrate target on its site, then the nitrate concentration in the HUC 11 watershed will be maintained. This analysis will be conducted as part of the revision process under the proposed WQMP rules.

Industrial Treatment Works

Under the proposed rule at N.J.A.C. 7:9C-1.8(b)5, discharges from new or expanded industrial treatment works to Class II and Class III ground water, except for those in the Highlands preservation area (which would require approval under the Highlands Act Rules, as explained above for Class I ground water), that require a NJPDES discharge to ground water permit, would not be permitted to exceed a total load of each constituent discharged to the property served by the industrial treatment equivalent to half of the sum of the background water quality and the applicable ground water quality criterion, where background water quality does not exceed the criterion.

The term “industrial treatment works” is defined in the NJPDES rules at N.J.A.C. 7:14A-1.2 and generally includes facilities that treat primarily process wastewater and/or industrial pollutants. Examples of industrial treatment works include water treatment plants, food processing operations, and chemical manufacturing plants. An industrial facility may operate both a domestic and industrial treatment works. If the domestic treatment works is a separate

discharge, then that discharge would be evaluated pursuant to N.J.A.C. 7:9C-1.8(b)4, while the industrial treatment works would be evaluated pursuant to (b)5.

While nitrate concentration serves as an appropriate surrogate for pollutants of concern discharged to ground water from domestic treatment works (as explained earlier in this summary), the same cannot be said for discharges to ground water from industrial treatment works. Because the universe of pollutants that might be discharged from new or expanded industrial treatment works is unlimited, it is impossible to establish one constituent (such as nitrate for domestic treatment works) that, if controlled at a specific concentration, would provide adequate protection from all other industrial pollutants.

For example, if the upgradient ambient ground water concentration of constituent X is 2 mg/L, and the ground water quality criterion for constituent X is 10 mg/L, then a new discharge to Class II ground water would be required to demonstrate that the total load of constituent X discharged to the property served by the industrial treatment would be 6 mg/L.

This provision is similar to the formula in the existing rules for establishing antidegradation limits for discharges to Class II-A ground water; however, this provision is more stringent than the existing antidegradation limits for discharges to Class II-B and Class III ground water.

Social Impact

The restoration, enhancement, and maintenance of the State's ground and surface waters and water-related resources are important to all residents of New Jersey. Residents access the State's ground water resources directly through the use of wells. Approximately forty-percent of the State's potable water supply comes from ground water sources. About 2.2 million people (out of an estimated total state population of 8.4 million people) rely on ground water from about 2,500 public supply wells. An additional estimated 1.1 million people in New Jersey rely on ground water from private domestic wells. There is also a direct connection between ground water and surface water, as ground water constitutes the base flow (i.e., the lowest flow level) of all rivers and streams; and ground water quality is closely related to the health of wetlands.

The proposed amendments and new rule will help the Department maintain existing ground water quality where it is better than criteria in all Class I ground water and for ground water in the Highlands preservation area (i.e. natural or background water quality). The proposed amendments and new rule will increase the degree and extent of ground water being maintained at existing ground water quality, defined as 2 mg/L nitrate on a regional, HUC 11 watershed scale, to include all new and expanded discharges from domestic treatment works to Class II and Class III ground water that require a WQMP amendment; and at or less than 6 mg/L nitrate on a site-specific basis for those that require a NJPDES-DGW permit.

The proposed amendments and new rule will also increase the degree and extent of ground water being maintained at better than criteria to include all discharges to Class II and

Class III ground water, where background water quality is better than criteria, from new and expanded industrial treatment works. Thus, there will be less degradation of water quality throughout the State and reduced need for additional treatment for ground water used as drinking water supplies that may otherwise be required due to degradation of ground water quality that was allowed under the existing rules.

The proposed amendments and new rule will provide greater protection of human health and the environment that will result in a positive social impact to all of the citizens of New Jersey. Since many residents use private wells for their drinking water supplies, the new antidegradation policy will improve protection for this use. In addition to human health, the maintenance of the existing ground quality that is better than criteria will result in positive social benefits to the citizens of the State through improved drinking water, industrial, and agricultural water supply uses of the State's waters.

Economic Impact

The proposed amendments and new rule apply only to new and expanded discharges to Class I ground Water and the Highlands preservation area, and new or expanded treatment works that discharge to Class II and Class III ground water Statewide; therefore, the proposed amendments and rule will not result in any additional economic impact to existing facilities or discharges that do not expand.

The proposed amendments and new rule will require that new and expanded discharges to Class I-PL (Pinelands) ground water to conform with N.J.A.C. 7:50-6 (rules concerning the Pinelands Commission's Comprehensive Management Plan). Thus, there will be no additional economic impact beyond that resulting from the rules governing the Pinelands area, which are already in effect.

The proposed amendments and new rule will require that new and expanded discharges to ground water in the Highlands preservation area conform with the Highlands Water Protection and Planning Act Rules. Thus, there will be no additional economic impact beyond that resulting from the Highlands Water Protection and Planning Act Rules, N.J.A.C. 7:38, which are already in effect.

The proposed amendments and new rule will eliminate the existing provisions that allow degradation of ground water up to the applicable criteria. Instead, all new and expanded domestic treatment works that discharge to Class II and Class III ground water (except in the Highlands preservation area) and require a WQMP amendment will be required to maintain 2 mg/L nitrate (i.e., existing ground water quality) on a HUC 11 watershed basis; all new and expanded domestic treatment works that discharge to Class II and Class III ground water (except in the Highlands preservation area) and require a NJPDES-DGW permit will be required to maintain a total nitrate load to the property served by the treatment works that, when expressed as a concentration, does not exceed 6 mg/L (i.e., half the sum of existing ground water quality and GWQC); and all new and expanded industrial treatment works that discharge to Class II and

Class III ground water (except in the Highlands preservation area) and require an industrial NJPDES-DGW permit will be required to maintain a concentration for each constituent discharged that does not exceed half of the sum of background water quality and the applicable water quality criterion.

There will be some economic impact resulting from the proposed amendments and new rule; however, the extent of the economic impact is difficult to quantify on a Statewide or site-specific basis. As explained earlier in the summary, for new and expanded domestic treatment works that require a plan amendment pursuant to N.J.A.C. 7:15, compliance with the antidegradation policy will be evaluated as part of the development of a wastewater management plan. Under the proposed amendments to the WQMP Rules, the septic density analysis required under N.J.A.C. 7:15-5.25 will determine the maximum volume of wastewater that can be discharged to ground water while still maintaining ground water quality at 2 mg/L nitrate. As a result of revised zoning to comply with the antidegradation policy, some individual property owners may realize less development opportunity and others may realize more development opportunity. However, that economic impact will be realized as a result of the amendments to the WQMP rules (see recent proposal for the economic impact analysis of those proposed amendments).

In addition, where such facilities require a NJPDES-DGW permit, compliance with the antidegradation policy will be evaluated as part of the NJPDES permit application process. For such facilities, there may be some economic impact from the proposed requirement to maintain a

total nitrate load to the property to be served by the domestic treatment works that does not exceed 6 mg/L when expressed as a concentration. However, such impacts depend on site-specific factors including the location of the facility, the size of the property, the volume of wastewater generated, and the level of treatment. The economic impact on an individual site or facility may range from no impact to significant impact. Some applicants may not require any additional investment in order to comply with the new rule. Some may require a modification to the project design, including the number, type, size, and/or location of units and/or treatment works. Some applicants may be unable to comply with the proposed rule and will be denied a permit to discharge.

A host of factors influences the cost of providing adequate design and treatment (e.g. soil type) that are solely dependant upon the permitting requirements rather than the GWQS. Therefore, most if not all of the additional economic impact will result from the application of the existing NJPDES rules. In fact, compliance with the proposed amendment and new rule does not ensure that a permit will be issued since the NJPDES rules address a host of environmental concerns, including but not limited to the physical constraints of the project site, that go beyond the scope of this proposal. Similarly, compliance with the proposed antidegradation policy does not guarantee that a WQMP plan amendment will be adopted for a particular project as the WQMP rules address a host of environmental concerns that also go beyond the scope of the GWQS. Thus, the specific economic impact of the proposed amendments and new rule cannot be that is separate and distinct from that resulting from compliance with the WQMP and NJPDES rules cannot be quantified for the purpose of this analysis.

While there may be an additional, indefinable cost associated with meeting the proposed amendments and new rule, there may also be a reduced, indefinable cost resulting from the increased consistency and predictability in planning and design of new and expanded treatment works that discharge to ground water based on the more clearly defined policy and implementation provisions of this proposal. In addition, there may be an indefinable offset of the additional costs associated with the proposed amendment and new rule when comparing the additional cost that may be incurred by applicants who propose new and expanded treatment works or discharges, in order to comply with the new rule, when compared to the reduced costs/cost savings that may be realized for future users of the ground water for potable supplies and other uses that would otherwise require (additional) treatment of ground water.

As stated in the summary and in the social impact analysis, above, the proposed amendments and new rule will provide protection of human health and the environment, while balancing the need for growth to accommodate New Jersey's increasing population. That growth will include residential, commercial, and industrial development where it can be supported by the carrying capacity of the environment in which the growth is planned, which will result in a positive economic impact to all of the citizens of New Jersey. Since many residents rely on ground water for their drinking water supplies, the proposed amendments and new rule will improve the protection of the ground water for this use, which will reduce the need for and/or the cost of treatment. In addition to human health, the maintenance of existing surface and ground

water quality that is better than criteria will result in positive economic benefits through reduced costs for treatment to maintain recreational, industrial, and agricultural uses of the State's waters.

Environmental Impact

The proposed amendments and new rule will have a positive environmental impact by ensuring that high quality ground water is maintained at existing water quality concentrations rather than be degraded to a certain percentage above or at criteria. This will enhance the quality of New Jersey's ground and surface waters Statewide. A positive environmental impact will also result from prohibiting or greatly reducing the degradation of ground water quality from new and expanded discharges and treatment works. The proposed amendments and new rule will help ensure that New Jersey's extensive ground water resources are protected from contamination; help prevent the destruction or deterioration of irreplaceable natural capital of enormous value that provides high-value services to the State on a long-term basis; will save billions of dollars in future avoided costs related to water treatment and other infrastructure improvement; will allow a reasonable level of development to continue; and will likely yield a general increase the value of property.

The State's population is projected to increase to 9.82 million by 2020 and to 10.25 million by 2025 (NJ Department of Labor, 2004). This population increase will be accompanied by a continuing demand for housing and other services (commercial and industrial). The proposed amendments and new rule will provide protection of human health and the environment, while balancing the need for growth to accommodate New Jersey's increasing

population, and will also provide a comprehensive, long-term planning approach by which future growth and associated development can be evaluated based on the environmental constraints that define the environmental carrying capacity on a regional basis. The Statewide average existing ground water quality (i.e., 2 mg/L nitrate) will be implemented through the wastewater management planning process under N.J.A.C. 7:15 and will also factor into the NJPDES-DGW permitting process under N.J.A.C. 7:14A, for all new and expanded domestic treatment works that discharge to Class II and Class III ground water outside of the Highlands preservation area.

In addition to human health, the maintenance of existing ground water quality that is better than criteria helps maintain existing surface water quality, since ground water constitutes the base flow (i.e., the lowest flow level) of all rivers and streams. Maintaining adequate base flow of streams is critical for the survival and health of aquatic ecosystems, including fish. Ground water quality is also closely related to the health of wetlands. Therefore, protecting ground water quality will result in a positive environmental impact by maintaining aquatic life and recreational uses of all the State's waters.

Federal Standards Analysis

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. require State agencies that adopt, readopt or amend rules that exceed any Federal standards or requirements to include in the rulemaking document a Federal standards analysis.

The GWQS provide the basis for protection of ambient ground water quality in New Jersey by establishing constituent standards for ground water pollutants. These constituent standards are applicable to the development of effluent limitations and discharge requirements pursuant to the New Jersey Pollutant Discharge Elimination System (NJPDES), N.J.A.C. 7:14A; to develop minimum ground water remediation standards pursuant to the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq.; and other requirements and regulatory actions applicable to discharges that cause or may cause pollutants to enter the ground waters of the State.

The authority for setting these standards comes solely from New Jersey law and has no Federal counterpart. The GWQS are not promulgated under the authority of, or in order to implement, comply with, or participate in any program established under Federal law or under a State statute that incorporates or refers to Federal law, Federal standards, or Federal requirements. The goal of the proposed amendments and new rule is to protect existing ground water quality from significant degradation and to prevent further degradation of ground water that already contravenes criteria. This goal will be achieved by implementing the antidegradation policy through the WQMP rules at N.J.A.C. 7:15 and the NJPDES rules at N.J.A.C. 7:14A. Accordingly, Executive Order No. 27(1994) and N.J.S.A. 52:14B-1 et seq. do not require a Federal standards analysis.

Jobs Impact

Since the proposed amendments and new rule include provisions that may require additional design and treatment for some facilities in order to comply with the new antidegradation provisions, there may be increased job opportunities for those who evaluate, design, operate and maintain domestic and industrial wastewater treatment systems and for those who are hired to advise owners and operators regarding financing, planning, permitting, construction, operation or maintenance of such facilities.

Regulatory Flexibility Statement

In accordance with the Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has determined that the proposed implementation provisions of the antidegradation policy will not have an effect on small businesses as defined in the Act. The GWQS are implemented through the Statewide Water Quality Management Planning (WQMP) Rules, New Jersey Pollutant Discharge Elimination System (NJPDES) rules, and Site Remediation and Waste Management programs. The GWQS themselves do not establish any record keeping or reporting requirements or require the use of professional services for compliance. Small businesses will be affected through the administration of the WQMP Rules, NJPDES program, and the Site Remediation and Waste Management Programs, to the extent that these businesses are regulated under these programs. The NJPDES program uses the GWQS to establish requirements for entities seeking to discharge wastewater via ground water disposal to ensure that the public health and the environment are adequately protected. These requirements are site-

specific and based upon the volume of wastewater to be discharged, the contaminants present in the wastewater, and the disposal option, not the size of the business.

Agricultural Industry Impact

The GWQS are not self-implementing. They are implemented through the WQMP rules, the NJPDES rules, and the Site Remediation and Waste Management programs. The NJPDES rules exempt discharges to ground water at agricultural sites, with the exception of discharges to ground water from concentrated animal feeding operations (see N.J.S.A. 7:14A-2.5(c)4). These operations are rare in New Jersey and, currently, the Department does not have any active NJPDES permits for discharges to ground water at agricultural sites. Therefore, the Department believes that there will be no impact to agriculture from the proposed provisions related to implementation of the antidegradation policy.

Smart Growth Impact

Executive Order No. 4(2002) requires State agencies that adopt, amend, or repeal any rule to describe the impact of the proposed rule on the achievement of smart growth and implementation of the New Jersey State Development and Redevelopment Plan (State Plan). The proposed amendments and new rule will apply to development that utilizes ground water for wastewater disposal and will help maintain the existing ground water quality. The proposed amendments and new rule are intended to conserve the State's natural resources, namely its ground water, which is one of the overall goals of the State Plan. Accordingly, the protection and

preservation of the ground water resources to be achieved by this rule proposal is supportive of the goals of the State Plan.

As stated earlier in the summary, the goal of the proposed antidegradation policy to protect existing ground water from significant degradation. This goal will be implemented through the WQMP rules and the NJPDES permitting process. The wastewater management planning process under N.J.A.C. 7:15 (the WQMP rules) is the most appropriate mechanism for evaluating the regional impacts of new and expanded ground water discharges upon ground water quality, since it provides a comprehensive review of the long-term, cumulative impacts of wastewater discharges associated with future development. This approach also enables municipalities to adequately plan for the volume of wastewater proposed for disposal for the entire planning area over the specified planning horizon.

If both rule proposals are adopted, most new development in the State will require a wastewater management plan, and the wastewater management planning process will determine the size and type of development that could be supported on a regional basis while maintaining existing ground water quality at 2 mg/L nitrate. (The NJPDES permit process will still determine the size and type of wastewater treatment that will be required to comply with the antidegradation provision on a site-specific basis.)

The State’s population is projected to increase to 9.82 million by 2020 and to 10.25 million by 2025 (NJ Department of Labor, 2004). This population increase will be accompanied

by a continuing demand for housing and other services (commercial and industrial). The proposed amendments and new rule will provide protection of human health and the environment, while balancing the need for growth to accommodate New Jersey's increasing population. That growth will include residential, commercial, and industrial development where it can be supported by the carrying capacity of the environment in which the growth is planned.

The proposed amendments and new rule will provide a comprehensive, long-term planning process by which future growth and associated development can be evaluated based on the environmental constraints that define the environmental carrying capacity on a regional basis. The proposed amendments and new rule will help achieve smart growth because development that complies with the antidegradation policy, as evaluated through the planning process, will be supported by the carrying capacity of the natural environment, in this case, the existing ground water quality.

Full text of the proposal follows (additions indicated with underline thus; deletions indicated in brackets [thus] :

CHAPTER 9C

GROUND WATER QUALITY STANDARDS

SUBCHAPTER 1. GROUND WATER QUALITY STANDARDS

7:9C-1.4 Definitions

The following words and terms, when used in this subchapter, shall have the following meanings:

…

["Antidegradation" means a policy to ensure that existing ground water quality (that currently is of higher quality than the water quality criteria in N.J.A.C. 7:9C-1.7) is not degraded to the criteria by discharges, but rather remains at a better quality ranging from natural quality at the most stringent, to a limited allowance for degradation at the least stringent. "Nondegradation" is the most stringent case of the antidegradation policy. It prohibits any degradation of ground water quality below existing background water quality by a discharge.]

…

["Antidegradation limit" is the numerical expression (in terms of a concentration or level of a constituent in ground water) of the antidegradation policy.]

…

HUC 11” or “hydrologic unit code 11” means an area within which water drains to a particular receiving surface water body, also known as a watershed, which is identified by an 11

_____

- digit hydrologic unit boundary designation, delineated within New Jersey by the United States Geological Survey.

…

7:9C-1.8 Antidegradation policy

[(a) The Department shall protect from significant degradation ground water which is of better quality than the criteria in N.J.A.C. 7:9C-1.7. Antidegradation limits shall be used as the basis for the development of constituent standards applicable to discharges, as modified by N.J.A.C. 7:9C-1.9(a) and (b). Where the concentration of a constituent at background water quality currently contravenes the criteria in N.J.A.C. 7:9C-1.7, no further degradation of ground water quality shall be allowed for that constituent.

(b) For constituents whose concentrations in background water quality are less than the ground water quality criteria in N.J.A.C. 7:9C-1.7 (excluding those constituents whose criteria are expressed as a range of concentrations), the antidegradation limits shall be determined by adding to background water quality concentration the difference between the ground water quality criterion and the background water quality concentration times the following percentages for each of the corresponding classes of ground water as follows:

Class I-A 0%

Class I-PL 0%

Class II-A 50%

The calculation of antidegradation limits may be represented by the following formula:

Constituent Standard = BWQ + (GWQC - BWQ) x %

where BWQ is the background water quality for a given constituent, GWQC is the ground water quality criterion and % is the antidegradation factor given above.

(c) The antidegradation limits for Class II-B are equal to the Class II-B criteria stated in N.J.A.C. 7:9C-1.7(d). Where the concentration of a constituent at background water quality currently contravenes the criteria, no further degradation of ground water quality shall be allowed for that constituent.

(d) The antidegradation limits for Class III-A are equal to the Class III-A criteria established pursuant to N.J.A.C. 7:9C-1.7(e).

(e) The antidegradation limit for Class III-B is equal to the Class III-B criteria established pursuant to N.J.A.C. 7:9C-1.7(f).]

(a) The Department shall protect existing ground water quality that is better than criteria from significant degradation. The Department shall not approve any further degradation of ground water quality where background water quality contravenes the criteria.

(b) The antidegradation policy at (a) above shall be implemented as follows:

1. The Department shall not approve a new or expanded discharge to Class I ground water if the discharge would result in the degradation of natural quality of the ground water, unless the discharge is to Class I-PL ground water and the project or activity associated with the discharge is in conformance with N.J.A.C. 7:50-6.

2. The Department shall not approve a new or expanded discharge to ground water in the Highlands preservation area unless the project or activity associated with the discharge conforms with the Highlands Water Protection and Planning Act Rules, N.J.A.C. 7:38. "Highlands preservation area" means that portion of the Highlands region so designated by N.J.S.A. 13:20-7b.

3. Excluding those in the Highlands preservation area subject to (b)2 above, the Department shall not approve a discharge from a new or expanded domestic treatment works to Class II or Class III ground water that requires a water quality management plan amendment pursuant to N.J.A.C. 7:15 unless the Department determines, through the plan amendment process, that existing ground water quality will be maintained. A nitrate concentration of 2 mg/L, which is representative of the average existing ground water quality Statewide, shall be used in determining that existing ground water quality is maintained on a HUC 11 basis.

4. Excluding those in the Highlands preservation area subject to (b)2 above, the Department shall not approve a discharge from a new or expanded domestic treatment works to Class II or Class III ground water that requires a NJPDES discharge to ground water permit pursuant to N.J.A.C. 7:14A unless the Department determines, through the NJPDES permit process, that the total nitrate load to the property served by the treatment works, when expressed as a concentration, shall not exceed 6 mg/L nitrate. The nitrate concentration of 6 mg/L nitrate represents half of the sum of 2 mg/L nitrate, which is representative of the average existing ground water quality Statewide, and the ground water quality criterion for nitrate of 10 mg/L (that is, 10,000 ug/L) set forth in Appendix Table 1.

5. Excluding those in the Highlands preservation area subject to (b)2 above, the Department shall not approve a discharge from a new or expanded industrial treatment works to Class II or Class III ground water that requires a NJPDES industrial discharge to ground water permit pursuant to N.J.A.C. 7:14A unless the Department determines, through the NJPDES permit process, that the total load of each constituent discharged to the property served by the treatment works, when expressed as a concentration, shall not exceed half of the sum of background water quality for that constituent and the applicable ground water quality criterion, where background water quality does not exceed such criterion.