

ENVIRONMENTAL PROTECTION

LAND USE MANAGEMENT

Ground Water Quality Standards

Proposed Readoption and

Recodification with Amendments:

N.J.A.C. 7:9-6 as N.J.A.C. 7:9C

Authorized By:

Bradley M. Campbell, Commissioner  
Department of Environmental Protection

Authority:

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

Calendar Reference: See summary below for explanation of exception to calendar requirement.

DEP Docket No: 16-04-07/405

Proposal Number: \_\_\_\_\_

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

Monday, November 15, 2004

3 PM to 5 PM or close of testimony whichever occurs first, and 6:00 PM to 8PM or close of testimony, whichever occurs first

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:

Leslie W. Ledogar, Esq.

Office of Legal Affairs

Attn: DEP Docket Number 16-04-07/405  
Department of Environmental Protection  
401 East State Street  
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The Department has prepared a Basis and Background document for this rule proposal that contains additional technical detail regarding the ground water quality criteria. The Basis and Background document is available at: <http://www.state.nj.us/dep/wmm/sgwqt/gwqsbb.pdf>

The Department strongly recommends that commenters submit comments on disk or CD as well as on paper. The Department prefers Microsoft Word 6.0<sup>TM</sup> or above. Macintosh<sup>TM</sup> 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.

The rule proposal can be viewed or downloaded from the Department's website 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 State's Ground Water Quality Standards (GWQS) are currently codified in Subchapter 6 of the Water Pollution Control rules, N.J.A.C. 7:9. The Department of Environmental Protection (Department) is proposing to readopt the GWQS and to recodify them in a separate Chapter at N.J.A.C. 7:9C. In accordance with the "sunset" provisions of the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., the Water Pollution Control rules are scheduled to expire on February 5, 2006 (36 N.J.R.1191(a)). Pursuant to N.J.S.A. 52:14B-5.1(c), this notice of proposal extends the expiration date of the GWQS to July 28, 2006.

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 rules, 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 Department uses the GWQS to protect pristine aquifers, set standards for discharges to ground water under the New Jersey Pollutant Discharge Elimination System (NJPDES) program, and to establish standards for ground water remediation under the Site Remediation and Waste Management Program. Accordingly, the proposed amendments to the GWQS will necessarily affect these regulatory programs. For example, new NJPDES permits for discharges to ground water issued under N.J.A.C. 7:14A will be based on the new GWQS when they are promulgated. For existing permits, the Department will impose new effluent limitations upon permit renewal, as necessary.

Additionally, under the Technical Requirements for Site Remediation, N.J.A.C. 7:26E, the Department will apply the new GWQS in accordance with N.J.A.C. 7:26E-1.13. The promulgation of new GWQS will have a significant effect on the remediation levels for a select group of contaminants on sites in New Jersey. Remediation standards based on new GWQS will be applied to new cases and to cases for which the responsible party has not submitted a Remedial Action Workplan (RAW) or similar document at the time of promulgation of these rules. The person responsible for conducting the remediation will be responsible for remediating ground water to the new standards. Additionally, pursuant to the "order of magnitude" provision of the Brownfield and Contaminated Site Act, N.J.S.A. 58:10B-12(j), under certain circumstances, the Department may compel additional remediation when a remediation standard changes. This provision states that, even if the Department has approved a RAW or similar plan or has issued a no further action (NFA) letter for a site, the Department may compel the use of a new remedial standard if the change in the standard is an order of magnitude or greater.

The Department is also proposing amendments to update the health-based ground water quality criteria and the related practical quantitation levels (PQLs) to reflect current scientific information in risk assessment and analytical capability. The Department is also proposing various administrative

amendments throughout the rules to update references to other Department programs and rules, and to correct grammar and modernize usage where appropriate.

The Department also intends in the future to propose amendments to other sections of the GWQS. The Department is publishing a notice elsewhere in this issue of 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.

The following is a summary of the provisions of the rules proposed for readoption and recodification at N.J.A.C. 7:9C as well as a description of the proposed amendments.

#### **N.J.A.C. 7:9C-1.1 Scope of chapter**

N.J.A.C. 7:9C-1.1 describes the scope of the GWQS, the rules by which the Department classifies ground water, designates uses of ground water and sets ground water quality criteria and constituent standards to protect and maintain the designated uses. The Department is proposing to amend N.J.A.C. 7:9C-1.1(b) to incorporate the Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10B-1 et seq.), which addresses the remediation of contaminated sites in the list of other relevant laws. The Department also proposes to substitute the term “remediation” for “cleanup” at both N.J.A.C. 7:9C-1.1(b) and (c) to utilize current terminology. The Department is also proposing to amend this section to reflect the change in the name of N.J.S.A. 13:1K-6 et seq. from the “Environmental Cleanup Responsibility Act” to the “Industrial Site Recovery Act.”

The Department is proposing to delete the phrase “and compliance levels beyond the boundaries of a contaminated site pursuant to applicable regulatory programs” from N.J.A.C. 7:9C-1.1(b). The Ground Water Quality Standards are utilized consistently throughout the Department to ensure that the ground water meets the designated uses. The Department does not apply different standards for off-site contamination.

#### **N.J.A.C. 7:9C-1.2 Policies**

N.J.A.C. 7:9C-1.2 specifies the policy of the State to restore, enhance and maintain the chemical, physical and biological integrity of the State’s waters and identifies policies designed to achieve restoration, enhancement and maintenance of the State’s waters.

### **N.J.A.C. 7:9C-1.3 Construction**

N.J.A.C. 7:9C-1.3 provides that the chapter is to be liberally construed to allow the Department to fulfill its statutory functions.

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

N.J.A.C. 7:9C-1.4 defines words and terms used in the chapter.

The Department is proposing to define the terms "carcinogen" and "non-carcinogen" to clarify how these terms are used in this rule. These definitions identify the traditional USEPA group categorizations of the types of carcinogens (i.e., Groups A, B, and C) and non-carcinogens (i.e., Groups D and E), and will incorporate narrative descriptions of carcinogenic classes that USEPA has proposed to use in the future and in some instances is using now. For example, USEPA has indicated that it will replace Group B with "likely to be carcinogenic to humans." See USEPA, "1999 Guidelines for Carcinogenic Risk Assessment. Review Draft." Office of Research and Development, Washington D.C., NCEA-F-0644 (on the web at <http://cfpub.epa.gov/ncea/raf/cancer.cfm>). The characterization of a constituent as either a "carcinogen" or "non-carcinogen" is used throughout these rules, and specifically at N.J.A.C. 7:9C-1.7(c) in ground water quality criteria calculations.

The Department is proposing to define the term "conservation restriction," which is used in N.J.A.C. 7:9C-1.5(d)1i(1) and elsewhere. The proposed definition of "conservation restriction" is consistent with the statutory definition of the term in the New Jersey Conservation Restriction and Historic Preservation Restriction Act, N.J.S.A. 13:8B-1, et seq. (the CRHPR Act).

The Department is proposing to delete "Energy" from the definition of "Department" to reflect the current name of the Department.

The Department is proposing to substitute the term "ground water quality criteria" for the term "water quality criteria" in the list of defined terms, and to continue to use the substantive definition of the term unchanged. "Ground water quality criteria" is used throughout the rules.

The Department is proposing to amend the definition of “natural area” to correct the cross-reference to the Department’s Natural Areas and the Natural Areas System rules, N.J.A.C. 7:5A and to replace the term “conservation easement” with “conservation restriction” to reflect the change in the defined term.

**N.J.A.C. 7:9C-1.5 Ground water classification system and designated uses**

N.J.A.C. 7:9C-1.5 establishes the classification of ground water according to the hydrogeologic characteristics of the ground water and the designated uses that are to be maintained, restored and enhanced in the classification area.

The Department proposes to replace the term “conservation easement” with “conservation restriction” at N.J.A.C. 7:9C-1.5(d)1i(1) and (d)1ii(5) to reflect the change in the defined term.

The Department proposes to delete the listing of natural areas from N.J.A.C. 7:9C-1.5(d)1iii(2) and, in place of this list, incorporate by reference the section of the Natural Areas System rules at N.J.A.C. 7:5A-1.13 in which the State's natural areas are listed. The Department intends that the ground water within all natural areas be classified as Class 1-A ground water and this amendment will ensure natural areas designated in the future will be covered by this provision.

The Department proposes revising the wording of the first sentence in N.J.A.C. 7:9C-1.5(e) to make its structure parallel with N.J.A.C. 7:9C-1.5(d).

The Department is readopting without amendment the rest of the ground water classification procedures and designated uses section of the rule at this time. The Department is reevaluating the ground water classification procedures and designated uses and is seeking public input on this topic. See the public notice entitled “Notice of Opportunity for Public Comment on Certain Topics Related to the Ground Water Quality Standards” published elsewhere in this issue of the New Jersey Register.

**N.J.A.C. 7:9C-1.6 Exceptions to the classification system**

N.J.A.C. 7:9C-1.6 specifies exceptions to the classification system outlined in N.J.A.C. 7:9C-1.5. These exceptions, called Classification Exception Areas, are established by the Department when the Department determines that constituent standards for a given classification are not or will not be met in a

localized area due to 1) natural quality; 2) localized effects of a discharge approved through a New Jersey Pollution Discharge Elimination System (NJPDES) Discharge to Ground Water permit action; 3) pollution caused by human activity within a contaminated site as defined by the Department in the context of a regulatory program (for example, a Site Remediation and Waste Management Program oversight document); or 4) an alternative concentration limit as approved by the Department pursuant to NJPDES.

### **N.J.A.C. 7:9C-1.7 Ground water quality criteria**

N.J.A.C. 7:9C-1.7 establishes the ground water quality criteria for various constituents within each class of ground water. This section describes the risk assessment approach, equations and methodologies used to develop health-based ground water quality criteria and when and how the Department may establish specific and interim specific criteria for constituents.

N.J.A.C. 7:9C-1.7(a) and (b) establish the ground water quality criteria for Class I-A and Class I-PL waters. Proposed amendments correct grammar and update a cross-reference.

N.J.A.C. 7:9C-1.7(c) establishes the ground water quality standards and the methodology utilized to establish ground water quality criteria for Class II-A areas and sets forth the conditions under which the Department may establish specific criteria (incorporated into Appendix Table 1) and interim specific criteria (which are utilized until the Department establishes a specific criterion and incorporates those criteria into Appendix Table 1).

Existing N.J.A.C. 7:9C-6.7(c)1 provides that specific ground water quality criteria and associated practical quantitation levels (PQLs) are listed in Appendix Table 1. The Department proposes to recodify this paragraph at N.J.A.C. 7:9C-1.7(c)1 without amendment. Additionally, the Department proposes updating numerous criteria and PQLs in Appendix Table 1 and incorporating existing interim specific criteria as specific criteria in Appendix Table 1. These changes are summarized below and are explained in more detail in the Basis and Background document for this rule proposal, available from the Office of Administrative Law, as well as at the Department's website at <http://www.state.nj.us/dep/wmm/sgwqt/gwqsbb.pdf>.

Existing N.J.A.C. 7:9C-1.7(c)2 through 6 set forth the equations, data sources and conventions that the Department uses to derive interim specific criteria. The Department proposes reorganizing these subsections and recodifying them with amendments at N.J.A.C. 7:9C-1.7(c)2 through 6.

Proposed N.J.A.C. 7:9C-1.7(c)2 sets forth the procedure by which the Department establishes interim specific criteria. This subsection enables the Department to establish an interim specific criterion for a constituent not listed in Appendix Table 1. The Department proposes eliminating the reference to establishing interim specific criteria on a “case-by-case” basis (see existing N.J.A.C. 7:9-6.7(c)2) because development of interim specific criteria has not been driven by site-specific variables. Rather, in the course of activities at a given site, the Department sometimes discovers a constituent for which a specific criterion has not yet been developed. In that instance, under both the existing and proposed rule, the Department may develop an interim specific criterion for that constituent which will then apply to all Class II-A groundwater, rather than just to the ground water at a given site.

Under existing N.J.A.C. 7:9-6.7(c)3, and proposed N.J.A.C. 7:9C-1.7(c)2i, the Department will maintain and make available to the public a listing of all interim specific criteria and the supplemental information used in their derivation. The proposed rule provides that they will be posted on the Department’s website at [http://www.state.nj.us/dep/wmm/sgwqt/is\\_text.html](http://www.state.nj.us/dep/wmm/sgwqt/is_text.html) and provided in hard copy upon request. Proposed N.J.A.C. 7:9C-1.7(c)2ii continues the requirement from existing N.J.A.C. 7:9-6.7(c)2 that the Department will replace interim specific criterion with specific criteria as soon as is reasonably possible by rule.

Proposed N.J.A.C. 7:9C-1.7(c)3 specifies the methods by which the Department establishes all ground water quality criteria. At N.J.A.C. 7:9C-1.7(c)3i, the Department proposes that, where the Department establishes health-based levels for constituents for which the maximum contaminant levels (MCLs) are promulgated at N.J.A.C. 7:10 pursuant to the Safe Drinking Water Act (SDWA), N.J.S.A. 58:12A-1 et seq., these levels shall be the specific groundwater quality criteria for those constituents. In November 1996, the Department adopted new SDWA standards at N.J.A.C. 7:10. (See 28 N.J.R. 4900, November 18, 1996). The standards are updated as necessary by rulemaking. The basis for the 1996 SDWA standards is given in the New Jersey Drinking Water Quality Institute’s 1994 Report on Maximum Contaminant Level Recommendations for Hazardous Contaminants in Drinking Water. Appendix A: Health-based Maximum Contaminant Level Support Documents and Addenda. Since the



intent of the ground water quality criteria for Class II-A water is to protect ground water as a potable water source, it is appropriate to incorporate the health-based levels on which the SDWA MCLs are based in these rules as the ground water quality criteria. The actual MCLs are not proposed to be adopted as specific criteria because, unlike the GWQS, the MCLs take into consideration analytical capability, and, in some cases, treatment technology. This approach is consistent with the current rule at N.J.A.C. 7:9-6.7(c)3i(1).

For ground water constituents for which no MCLs have been established, the Department proposes to calculate the ground water quality criteria according to the equations and data sources proposed to be codified at N.J.A.C. 7:9C-1.7(c)3ii and (c)4. The Department proposes to replace the term "contaminant" with the term "constituent," consistent with terminology used in other provisions of the rules. The Department is proposing to replace the term "carcinogenic potency factor" with the term "carcinogenic slope factor," consistent with the terminology used by the USEPA.

The Department is proposing to repeal the provision regarding the basis for the lead criterion at existing N.J.A.C. 7:9-6.7(c)4iv. The specific ground water quality criterion for lead of 5 ug/l is proposed to be listed in Appendix Table 1.

As in existing N.J.A.C. 7:9-6.7(c)5, the Department will continue its practice of determining whether a constituent is a human carcinogen, and then use this determination as the basis for deciding whether to calculate the constituent's ground water quality criterion using the equation in N.J.A.C. 7:9C-1.7(c)4i (for carcinogens) or in N.J.A.C. 7:9C-1.7(c)4ii (for non-carcinogens).

The proposed equation at N.J.A.C.7:9C-1.7(c)4ii for calculating the ground water quality criteria for non-carcinogens, will also be used to calculate the ground water quality criteria for constituents that are carcinogens but for which the carcinogenic slope factor is not applicable, for example, those carcinogens categorized as Group C (Possible Human Carcinogen) under current EPA guidelines. Under the existing rule for Group C carcinogens at N.J.A.C. 7:9-6.7(c)4ii, the criteria are calculated by application of an uncertainty factor in addition to the reference dose. If no reference dose is available, the criteria are calculated from the slope factor based on additional lifetime cancer risk of  $10^{-5}$ . This approach was established consistent with that used by the USEPA Office of Drinking Water.

The Department evaluated the approaches used by both the USEPA Office of Drinking Water and the USEPA Superfund program to assess the risk associated with Group C carcinogens. The Office of Drinking Water requires that the risk assessment be based on the reference dose for non-carcinogenic effects, with an additional uncertainty factor of ten to protect from possible carcinogenic effects. As noted above, if no reference dose is available, the risk assessment is based on the carcinogenic slope factor with an additional lifetime cancer risk level of  $10^{-5}$ . In contrast, the Superfund program bases its risk assessments for Group C carcinogens on the carcinogenic slope factor, if available, with a  $10^{-6}$  risk level. If no carcinogenic slope factor is available, the Superfund program requires that the Reference Dose for non-carcinogenic effects be used without the incorporation of an additional uncertainty factor.

To develop health-based ground water quality criteria for Group C carcinogens, the Department proposes at N.J.A.C. 7:9C-1.7(c)4 to use a revised approach that is technically defensible, appropriately protective of human health, and compatible with USEPA's drinking water program. The Department's proposed approach specifies the use of a carcinogenic slope factor at a  $10^{-6}$  risk level (similar to the approach used by the Superfund program and more protective than the existing rule which specifies  $10^{-5}$ ), if a slope factor is applicable. (See the formula at proposed N.J.A.C. 7:9C-1.7(c)4i.) If no suitable slope factor is available, the risk assessment will be calculated using the formula at N.J.A.C. 7:9C-1.7(c)4ii, based on non-carcinogenic effects, using the reference dose and an additional uncertainty factor of 10 to protect for possible carcinogenicity. The Department proposes to apply this approach to all Group C carcinogens, except those constituents with maximum contaminant levels (MCLs) addressed by the New Jersey Drinking Water Quality Institute.

The Department proposes to simplify the equations in proposed N.J.A.C. 7:9C-1.7(c)4 by describing each variable within the equations. As in the equations currently codified at N.J.A.C. 7:9-6.7(c)5, the following are proposed to be codified in the equations at N.J.A.C. 7:9C-1.7(c)4 as default values: average adult weight of 70 kg; assumed daily water consumption of 2 liters per day, upper bound lifetime excess cancer risk (for carcinogens) of  $1 \times 10^{-6}$ ; relative source contribution (for non-carcinogens and carcinogens for which no carcinogenic slope factor is applicable) of 20 percent; and a conversion factor of 1000 ug/mg.

The Department also proposes at N.J.A.C. 7:9C-1.7(c)4 that the USEPA Integrated Risk Information System (IRIS) database will be the source for the default values for the carcinogenic slope

factor or reference dose to be utilized in the equations at (c)4i and ii, respectively. Under the existing rule, for each constituent for which the Department calculates a ground water quality criterion, the Department utilizes one of the four data sources for carcinogenic slope factor for carcinogens or reference dose for non-carcinogens listed at existing subsection N.J.A.C. 7:9-6.7 (c)3i. These four data sources are: (1) information which forms the basis for drinking water standards adopted by the Department pursuant to the SDWA; (2) IRIS; (3) the USEPA's Health Effects Assessment Summary Tables (HEAST); and (4) other pertinent health-based data. As discussed above, under the proposed rule, the Department proposes to use the health-based levels used to establish the MCLs as specific criteria in Table 1. See N.J.A.C. 7:9C-1.7(c)3i. For all constituents for which the Department has not established an MCL, the Department is proposing at N.J.A.C. 7:9C-1.7(c)4 to utilize IRIS as the source for the carcinogenic slope factor or reference dose.

IRIS is an electronic database (<http://www.epa.gov/iris>) that contains information on human health effects that may result from exposure to various chemicals in the environment. IRIS was initially developed for USEPA staff in response to a growing demand for consistent information on chemical substances for use in risk assessments, decision-making and regulatory activities. The heart of the IRIS system is its collection of computer files covering individual chemicals. These chemical files contain descriptive and quantitative information on the oral reference doses (RfDs) and inhalation reference concentrations (RfCs) for chronic non-carcinogenic health effects and hazard identification, oral slope factors, and oral and inhalation unit risks for carcinogenic effects of various chemical substances.

Each reference dose/concentration and carcinogenicity assessment in IRIS has been reviewed by a group of USEPA health scientists using consistent chemical hazard identification and dose-response assessment methods to achieve agency consensus. USEPA revises the information in IRIS periodically when additional health effects data become available.

The Department proposes characterizing all of the values to be utilized in the equations proposed at N.J.A.C. 7:9C-1.7(c)4 as "default" values. The Department anticipates that there may be instances where criteria will be generated based on values that are not specified in the rule. For example, the Department recognizes that IRIS does not include toxicity factors for all constituents. Further, there may be some constituents for which the Department may choose to use the weight of a child instead of the weight of an average adult because the risk posed by the constituent is greater for children than adults. In

these instances, the Department will explain any variation from the equations and the basis for it in the supplemental information it will make available on the website for an interim specific criterion, or in the rule proposal summary for a specific criterion.

The Department is also proposing to recodify at N.J.A.C. 7:9C-1.7(c)4iii the provision at existing N.J.A.C. 7:9C-6.7(c)3ii regarding how the values calculated for ground water quality criteria are rounded, and to restructure the wording of this provision for clarity.

The Department is proposing to add a new provision at N.J.A.C. 7:9C-1.7(c)5 that provides that a specific criterion listed in Appendix Table 1 will be revised through publication in the New Jersey Register of a notice of administrative change in two circumstances: (1) when the Department promulgates an MCL in the Safe Drinking Water Act rules N.J.A.C. 7:10, and (2) when USEPA modifies the carcinogenic slope factor or reference dose data in the IRIS database that was used to develop the criterion in Appendix Table 1.

USEPA's revisions to IRIS are subject to a comprehensive internal and external peer review process prior to their inclusion in the database. This process consists of: (1) an annual announcement in the Federal Register of USEPA's IRIS agenda and a call for scientific information from the public on the selected chemical substances; (2) a search of the current scientific literature; (3) development of health assessments and draft IRIS summaries; (4) peer review of the health assessments and draft IRIS summaries within USEPA; (5) peer review of the health assessments and draft IRIS summaries outside USEPA; (6) USEPA consensus review and management approval; (7) preparation of final IRIS summaries and supporting documents; and (8) entry of summaries and supporting documents into the IRIS data base.

The general public may obtain information regarding the IRIS database from several sources. First, as previously mentioned, USEPA maintains an IRIS website at <http://www.epa.gov/iris>. Second, the National Center for Environmental Assessment (NCEA) IRIS Hotline contractor staffs a hotline that fields questions regarding the IRIS database. Webmaster and Hotline contact information is provided on the IRIS website. Third, the central IRIS file and public reading room, located at the IRIS Hotline contractor facility, serves as the repository for the peer review record for the assessment of each chemical in the IRIS data base, the summary of the consensus review, the final consensus memorandum, copies of

key references (documenting “principal studies’ used in the assessment), any difficult-to-find reference material including unpublished studies, USEPA reports, and foreign translations, and any public submissions pertinent to the assessment.

The Department proposes to recodify existing N.J.A.C. 7:9-6.7(c)6 at N.J.A.C. 7:9C-1.7(c)6 with minor grammatical revisions. Under this provision, the Department establishes generic criteria for Synthetic Organic Chemicals when no specific criterion is listed in Appendix Table 1 and where insufficient health-based information is available to derive a specific criterion. Interim generic criteria are listed in Appendix Table 2.

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

N.J.A.C. 7:9C-1.8 establishes the Department’s antidegradation requirements and sets forth how the requirements are applied within the various ground water classifications.

The Department proposes readopting the current antidegradation policy without amendments at this time. The Department is reevaluating the antidegradation policy and is seeking public input on this topic. See the public notice entitled “Notice of Opportunity for Public Comment on Certain Topics Related to the Ground Water Quality Standards” published elsewhere in this issue of the New Jersey Register.

#### **N.J.A.C. 7:9C-1.9 Constituent standard modifications and practical quantitation levels**

Proposed N.J.A.C. 7:9C-1.9 provides for modifications to the constituent standards when constituents at background water quality exceed the criteria established in N.J.A.C. 7:9C-1.7. It also describes practical quantitation levels (PQLs) and their usage. PQLs are the lowest concentration level of a constituent that can be reliably measured and reported during routine laboratory operating conditions. This approach is consistent with the USEPA’s definition and application in the federal water programs.

The Department is proposing to amend N.J.A.C. 7:9C-1.9(c)2 to clarify that a PQL will not be developed for a constituent for which an interim generic criterion has been derived. The Department will use the interim generic criterion as the standard unless the Department approves an alternate PQL. This

amendment is necessary to correct an error in the existing rule, which required the use of PQLs listed in existing Table 1. However, since Table 1 only contains specific criteria, neither interim generic criteria nor corresponding PQLs were listed in Table 1.

The Department proposes to amend N.J.A.C. 7:9C-1.9(c)3ii to reflect the change in the methods used by the Department to derive PQLs. Over time, the accuracy of analytical methods improves and new analytical methods are developed. It is the Department's responsibility to select PQLs that are not only achievable by the certified laboratory community but will also more closely approach the established health-based criterion. The ground water quality criteria are human health-based and will sometimes result in a concentration that is lower than the lowest concentration that is measurable using approved analytical methods. In these circumstances, the Department uses PQLs to determine compliance with the health-based ground water quality criteria.

The proposed PQL updates reflect the most recent information that has been tabulated and reviewed by the Department. Preference was given to method detection limit (MDL) data obtained from the New Jersey Department of Health and Senior Services Laboratory (DHSS), which is the New Jersey primacy laboratory for drinking water analyses. The DHSS was considered the best source of data, because the Department's Bureau of Safe Drinking Water contracts with the DHSS laboratory on a continuous basis for many water quality parameters and there is an abundance of intra-laboratory precision and accuracy data for these methods. Accordingly, the DHSS MDL values multiplied by 5 are proposed as the default values for PQL calculations in this rule. If a PQL could not be established based on the DHSS MDLs or were determined to be inadequate for a particular constituent or analytical method, the Department proposes following the method outlined by Sanders, Lippincott and Eaton in "Determining Quantitation Levels for Regulatory Purposes." J. Amer. Water Works Assoc., March 1996, pp. 104-114.

The Department proposes updating the existing PQLs in Appendix Table 1, adding PQLs for existing criteria for which a PQL was not established, and adding PQLs for the constituents being added to Appendix Table 1 through this rulemaking. Proposed updated PQLs are presented later in this rule summary in the section detailing changes to Appendix Table 1. Proposed updated PQLs, the associated analytical methods and the source of the methods are presented in the Appendix Table A of the Basis and

Background document. The Basis and Background Document is available on the Department's website at: <http://www.state.nj.us/dep/wmm/sgwqt/gwqsbb.pdf>.

In a separate initiative, the Department plans to develop New Jersey Quantitation Levels (NJQLs) at N.J.A.C. 7:18 (Regulations Governing the Certification of Laboratories and Environmental Measurements). NJQLs will mirror the PQLs in the GWQS, but will utilize analytical data specific to New Jersey-certified laboratories. The NJQL will take into account performance variations within the New Jersey-certified laboratory community. The NJQL will represent a level that can be reliably quantified by most laboratories operating under normal conditions. The NJQL will be both an analyte-specific and method-specific values. In support of this initiative, the Department is collecting MDL data from the New Jersey-certified laboratory community, and will propose amendments to N.J.A.C. 7:18. Once the NJQLs are adopted at N.J.A.C. 7:18, the Department intends to revise N.J.A.C. 7:9C-1.9(c) and Appendix Table 1 to reference the NJQLs. The NJQLs will provide the appropriate quantitation levels that will be used to determine compliance with the GWQS.

#### **N.J.A.C. 7:9C-1.10 Procedures for reclassification of ground water**

N.J.A.C. 7:9C-1.10 establishes the administrative procedure for reclassification of ground water.

The Department is proposing to readopt the procedures for reclassifying ground water without amendment at this time. The Department is reevaluating the ground water reclassification procedures and is seeking public input on this topic. See the public notice entitled "Notice of Opportunity for Public Comment on Certain Topics Related to the Ground Water Quality Standards" published elsewhere in this issue of the New Jersey Register.

#### **N.J.A.C. 7:9C-1.11 Severability**

N.J.A.C. 7:9C-1.11 establishes that if any provision of the rules or any application of any rule provision is held to be invalid, the invalidity shall not affect any other provision or application.

#### **Appendix – Table 1**

The Department has reviewed the existing specific criteria, the existing interim specific criteria and the PQLs associated with these criteria and is proposing amendments to Table 1. A table summarizing the proposed changes appears below.

The Department proposes to adopt 53 interim specific criteria (ISCs) as specific criteria. Of these ISCs, 36 are being proposed for inclusion as new specific criteria; 11 are existing constituents that formerly had no criteria and are listed as NA (not available) in the existing Appendix Table 1; and 7 are existing constituents whose criteria were previously updated through the development of ISCs. The Department is proposing to add a specific criterion for Camphor. In addition, the criteria and PQLs for all the ISCs were reviewed prior to their incorporation as specific criteria. As a result, the proposed standard for 19 ISCs are different from those currently posted on the Department's website.

The Basis and Background document details the sources used for the toxicity information for each constituent. This Basis and Background document also includes information supporting the development of the proposed PQLs for each constituent. In addition, the Chemical Abstracts Service Registration Numbers (CASRN) are proposed to be updated to correspond with the CASRN used in IRIS.

The Department is also proposing to delete certain constituents from Appendix Table 1. Upon review, the Department has determined that there is currently insufficient toxicity information to support maintaining ground water quality criteria for these chemicals. These constituents will be regulated using the interim generic provisions found in N.J.A.C. 7:9C-1.7(c)6. The criteria for synthetic organic chemicals regulated as interim generic criteria are listed in Appendix Table 2. The Department will maintain a list of interim generic criteria at: [http://www.state.nj.us/dep/wmm/sgwqt/is\\_text.html](http://www.state.nj.us/dep/wmm/sgwqt/is_text.html)

As indicated in the summary of changes to N.J.A.C. 7:9C-1.7(c), the Department has revised the approaches used for deriving health-based criteria for Group C carcinogens. Where adequate information is available to calculate a carcinogenic slope factor, the Department proposes using the revised equation at N.J.A.C. 7:9C-1.7(c)4i. If a slope factor for a constituent is not available, the Department proposes revising the criteria based on the equation in N.J.A.C. 7:9C-1.7(c)4ii, using the Reference Dose, with an additional uncertainty factor of 10 to protect from possible carcinogenic effects. The Department proposes revising the criteria for Adipates, beta-BHC, gamma-BHC, Dibromochloromethane, Hexachlorobutadiene, Hexachloroethane, Isophorone, Simazine and 1,1,1,2-Tetrachloroethane, based upon the implementation of this new methodology.



As indicated in the summary of changes to N.J.A.C. 7:9C-1.9, the Department also proposes to simplify the process used to derive practical quantitation levels (PQLs). The Department has reviewed and proposes updating the PQLs for all constituents. The Basis and Background document details the sources and analytical methods used to derive the PQL for each constituent.

The following summary table lists the constituents that the Department proposes to change, with the corresponding criteria and PQLs. The table shows the origin and change of each constituent standard over time. The existing Appendix Table 1 specific criteria and corresponding PQLs are listed in the third and fourth columns of the summary table. The fifth and sixth columns of the summary table contain the existing interim specific criteria and their corresponding PQLs, all of which have been developed for either new constituents (those not previously listed in Appendix Table 1) or for existing constituents that have been updated since the criteria were first adopted in 1993. The ninth column, "Reason for Change," references the applicable footnotes summarizing the changes; a more detailed discussion of the changes can be found in the Basis and Background document. The last two columns contain the existing ground water quality standard and the proposed ground water quality standard. As stated in the rule text with regards to PQLs (N.J.A.C. 7:9C-1.9(c)), a constituent standard is the higher of the health-based criterion or PQL. In the last column of the table, constituents whose standards are based on the PQL have been indicated with an asterisk. Because of the large number of proposed changes to the Appendix Table 1 criteria and PQLs, the Department proposes deleting existing Appendix Table 1 in its entirety and replacing it with a new, revised Appendix Table 1.

## **Appendix Table 2**

Appendix Table 2 lists interim generic criteria for those synthetic organic chemicals (SOCs) that lack specific or interim specific criteria. The interim generic criterion that applies to a constituent is based on whether or not there is evidence of carcinogenicity. The Department proposes to update this table to reflect the definitions for carcinogen and non-carcinogen proposed to be added to N.J.A.C. 7:9C-1.4.

## Summary of Changes to GWQS

Constituent	CASRN	Current Table 1 Criterion	Current Table 1 PQL	Interim Specific Criterion	Interim Specific PQL	Proposed Criterion	Proposed PQL	Reasons For Changes (see footnotes)	Current Standard	Proposed Standard
Acenaphthene	83-32-9	400	10					No change	400	400
Acenaphthylene	208-96-8	NA	10			Delete		a	NA	Delete
Acetone	67-64-1	700	NA			6,000	10	b, c	700	6,000
Acetophenone	98-86-2			1,000	10	700		b, d, e	1,000	700
Acrolein	107-02-8	NA	50	10	5	4		b, d, e	10	5*
Acrylamide	79-06-1	0.008	NA				0.2	c	0.008	0.2*
Acrylonitrile	107-13-1	0.06	50				2	c	50	2*
Adipates (Di(2-ethylhexyl)adipate) (DEHA)	103-23-1	NA	6	400	3	30		b, e, f	400	30
Alachlor	15972-60-8	0.43	2			0.4	0.1	b, c, d	2	0.4
Aldicarb sulfone	1646-88-4	2	3			7	0.3	b, c	3	7
Aldrin	309-00-2	0.002	0.04					No change	0.04	0.04*
Aluminum	7429-90-5	200	200				30	c	200	200
Ammonia (Total)	7664-41-7	500	200	50	200	3,000		b, e, g	200	3,000
Aniline	62-53-3			6	2			e	6	6
Anthracene	120-12-7	2,000	10					No change	2,000	2,000
Antimony (Total)	7440-36-0	2	20			6	3	b, c	20	6
Arsenic (Total)	7440-38-2	0.02	8				3	c	8	3*
Asbestos	1332-21-4	7X10 <sup>6</sup> f/L>10um <sup>#</sup>	10 <sup>5</sup> f/L>10um <sup>#</sup>				10 <sup>6</sup> f/L>10um <sup>#</sup>	c	7X10 <sup>6</sup> f/L>10um <sup>#</sup>	7X10 <sup>6</sup> f/L>10um <sup>#</sup>
Atrazine	1912-24-9	3	1				0.1	c	3	3
Barium	7440-39-3	2,000	200					No change	2,000	2,000
Benz(a)anthracene	56-55-3	NA	10	0.05	0.2		0.1	c, e	0.2	0.1*
Benzene	71-43-2	0.2	1					No change	1	1*
Benzidine	92-87-5	0.0002	50				20	c	50	20*
Benzo(a)pyrene (BaP)	50-32-8	NA	20	0.005	0.2		0.1	c, e	0.2	0.1*
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	205-99-2	NA	10	0.05	10		0.2	c, e	10	0.2*
Benzo(ghi)perylene	191-24-2	NA	20	100	0.3	Delete		a	100	Delete
Benzo(k)fluoranthene	207-08-9	NA	2	0.5	1		0.3	c, e	1	0.5
Benzoic Acid	65-85-0			30,000	50			e	30,000	30,000
Benzyl Alcohol	100-51-6	2,000	NA				20	c	2,000	2,000
Beryllium	7440-41-7	0.008	20			1	1	b, c, g	20	1
alpha-BHC- (alpha-HCH)	319-84-6	0.006	0.02					No change	0.02	0.02*
beta-BHC (beta-HCH)	319-85-7	0.2	0.04			0.02		b, f	0.2	0.04*
gamma-BHC (gamma-HCH/Lindane)	58-89-9	0.2	0.2			0.03	0.02	b, c, f	0.2	0.03
1,1-Biphenyl	92-52-4			400	10			e	400	400
Bis(2-chloroethyl) ether	111-44-4	0.03	10				7	c	10	7*

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Constituent	CASRN	Current Table 1 Criteri on	Current Table 1 PQL	Interim Specific Criterion	Interim Specific PQL	Proposed Criterion	Proposed PQL	Reasons For Changes (see footnotes)	Current Standard	Proposed Standard
Bis(2-chloroisopropyl) ether	108-60-1	300	10					g	300	300
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	3	30			2	3	b, c, d	30	3*
Bromodichloromethane (Dichlorobromomethane)	75-27-4	0.3	1			0.6		b	1	1*
Bromoform	75-25-2	4	0.8					No change	4	4
n-Butanol (n-Butyl alcohol)	71-36-3			900	20	700		b, d, e	900	700
tertiary-Butyl alcohol (TBA)	75-65-0			100	100		2	c, e	100	100
Butylbenzyl phthalate	85-68-7	100	20				1	c	100	100
Cadmium	7440-43-9	4	2				0.5	c	4	4
Camphor	76-22-2					1,000	0.5	i	NA	1,000
Carbofuran	1563-66-2	40	7				0.5	c	40	40
Carbon Disulfide	75-15-0			800	10	700	1	b, c, e	800	700
Carbon Tetrachloride	56-23-5	0.4	2				1	c	2	1*
Chlordane	57-74-9	0.01	0.5					No change	0.5	0.5*
Chloride	16887-00-6	250,000	2,000					No change	250,000	250,000
4-Chloroaniline (p-Chloroaniline)	106-47-8			30	10			e	30	30
Chlorobenzene (Monochlorobenzene)	108-90-7	4	2	50	1			e	50	50
Chloroform	67-66-3	6	1			70		b	6	70
4-Chloro-3-methylphenol (3-Methyl-4-chlorophenol)	59-50-7	NA	20	100	20	Delete		a, h	100	Delete
2-Chloronaphthalene	91-58-7			600	10			e	600	600
2-Chlorophenol	95-57-8	40	20					No change	40	40
Chlorpyrifos	2921-88-2	20	0.2				0.1	c, g	20	20
Chromium (Total)	7440-47-3	100	10			70	1	b, c	100	70
Chrysene	218-01-9	NA	20	5	0.2			e	5	5
Color		10 CU	20 CU				5 CU	c	20 CU	10 CU
Copper	7440-50-8	1,000	1,000			1,300	4	b, c	1,000	1,300
Cumene (Isopropyl benzene)	98-82-8			800	0.8	700	1	b, c, d, e	800	700
Cyanide (free cyanide)	57-12-5	200	40			100	6	b, c, d	200	100
2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	70	5				2	c	70	70
Dalapon (2,2-Dichloropropionic acid)	75-99-0	200	10				0.1	c	200	200
4,4'-DDD (p,p'-TDE)	72-54-8	0.1	0.04				0.02	c	0.1	0.1
4,4'-DDE	72-55-9	0.1	0.04				0.01	c	0.1	0.1
4,4'-DDT	50-29-3	0.1	0.06				0.1	c	0.1	0.1
Demeton	8065-48-3	0.3	NA				1	c	0.3	1*
Dibenz(a,h)anthracene	53-70-3	NA	20	0.005	0.5		0.3	c, e	0.5	0.3*
Dibromochloromethane (Chlorodibromomethane)	124-48-1	10	1			0.4		b, f	10	1*
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	NA	2	0.03	1	0.02	0.02	b, c, d, e	1	0.02
Di-n-butyl phthalate	84-74-2	900	20			700	1	b, c, d	900	700

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Constituent	CASRN	Current Table 1 Criterion	Current Table 1 PQL	Interim Specific Criterion	Interim Specific PQL	Proposed Criterion	Proposed PQL	Reasons For Changes (see footnotes)	Current Standard	Proposed Standard
1,2-Dichlorobenzene (ortho)	95-50-1	600	5					No change	600	600
1,3-Dichlorobenzene (meta)	541-73-1	600	5					No change	600	600
1,4-Dichlorobenzene (para)	106-46-7	75	5					No change	75	75
3,3-Dichlorobenzidine	91-94-1	0.08	60				30	c	60	30*
Dichlorodifluoromethane (Freon 12)	75-71-8			1,000	0.5		2	c, e	1,000	1,000
1,1-Dichloroethane (1,1-DCA)	75-34-3	70	NA	50	1			e	50	50
1,2-Dichloroethane	107-06-2	0.3	2					No change	2	2*
1,1-Dichloroethylene (1,1-DCE)	75-35-4	1	2				1	c	2	1
cis-1,2-Dichloroethylene	156-59-2	10	2	70	2		1	c, e	70	70
trans-1,2-Dichloroethylene	156-60-5	100	2				1	c	100	100
2,4-Dichlorophenol (DCP)	120-83-2	20	10					No change	20	20
1,2-Dichloropropane	78-87-5	0.5	1					No change	1	1*
cis-1,3-Dichloropropene	10061-01-5	NA	5			Delete		a2	NA	Delete
trans-1,3-Dichloropropene	10061-02-6	NA	7			Delete		a2	NA	Delete
1,3-Dichloropropene (cis and trans)	542-75-6	0.2	NA			0.4	1	b, c	0.2	1*
Dieldrin	60-57-1	0.002	0.03					No change	0.03	0.03*
Diethyl phthalate	84-66-2	5,000	10			6,000	1	b, c, d	5,000	6,000
Diisodecyl phthalate (DIDP)	26761-40-0			100	3			e	100	100
Diisopropyl ether (DIPE)	108-20-3			20,000	5			e	20,000	20,000
2,4-Dimethyl phenol	105-67-9	100	20					No change	100	100
Dimethyl phthalate	131-11-3	NA	10			Delete		a	NA	Delete
4,6-Dinitro-O-Cresol (2-Methyl-4,6-Dinitrophenol)	534-52-1	NA	60	100	20	Delete		a	100	Delete
2,4-Dinitrophenol	51-28-5	10	40					No change	40	40*
2,6-Dinitrotoluene	606-20-2	NA	10			Delete		a3	NA	Delete
2,4-Dinitrotoluene/2,6-Dinitrotoluene Mix	25321-14-6	0.05	10					g	10	10*
Di-n-octyl phthalate	117-84-0	100	NA				10	c	100	100
Dinoseb	88-85-7	7	2					No change	7	7
Diphenylamine	122-39-4			200	20			e	200	200
1,2-Diphenylhydrazine	122-66-7	0.04	NA				20	c	0.04	20*
Diquat	85-00-7	20	NA				2	c	20	20
Endosulfan (alpha and beta)	115-29-7	0.4	NA			40	0.1	b, c	0.4	40
alpha-Endosulfan (Endosulfan I)	959-98-8	0.4	0.02			40		b	0.4	40
beta-Endosulfan (Endosulfan II)	33213-65-9	0.4	0.04			40		b, g	0.4	40
Endosulfan Sulfate	1031-07-8	0.4	0.03			40	0.02	b, c, g	0.4	40
Endothall	145-73-3	100	NA				60	c	100	100
Endrin	72-20-8	2	0.04				0.03	c	2	2
Epichlorohydrin	106-89-8	4	NA				5	c	4	5*

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Ethion	563-12-2			4	0.5			e	4	4
Ethyl acetate	141-78-6			6,000	10			e	6,000	6,000
Ethylbenzene	100-41-4	700	5				2	c	700	700
Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.0004	0.05				0.03	c	0.05	0.03*
Ethylene glycol	107-21-1			300	200			e	300	300
Ethylene glycol monomethyl ether	109-86-4			7	20,000			e	20,000	20,000*
Ethyl ether	60-29-7			1,000	50			e	1,000	1,000
Fluoranthene	206-44-0	300	10					No change	300	300
Fluorene	86-73-7	300	10				1	c	300	300
Fluoride	7782-41-4	2,000	500					g	2,000	2,000
Foaming agents (ABS/LAS)		500	0.5					No change	500	500
Formaldehyde	50-00-0			100	30			e	100	100
Glyphosate	1071-83-6	700	NA				30	c, g	700	700
Hardness (as CaCO3)		250,000	10,000					No change	250,000	250,000
Heptachlor	76-44-8	0.008	0.4				0.05	c	0.4	0.05*
Heptachlor epoxide	1024-57-3	0.004	0.2					g	0.2	0.2*
Hexachlorobenzene	118-74-1	0.02	10				0.02	c	10	0.02
Hexachlorobutadiene	87-68-3	1	1			0.4		b, f	1	1*
Hexachlorocyclopentadiene	77-47-4	50	10			40	0.5	b, c	50	40
Hexachloroethane	67-72-1	0.7	10			2	7	b, c, f	10	7*
Hexane (n-Hexane)	110-54-3			30	5			e	30	30
Hydrogen sulfide	7783-06-4	20	NA			Delete		a	20	Delete
Indeno (1,2,3-cd)pyrene	193-39-5	NA	20	0.05	10		0.2	c, e	10	0.2*
Iron	7439-89-6	300	100				20	c	300	300
Isophorone	78-59-1	100	10			40		b, f	100	40
Lead (Total)	7439-92-1	5	10				5	c	10	5
Malathion	121-75-5	200	5			100	0.6	b, c, d	200	100
Manganese	7439-96-5	50	6				0.4	c	50	50
Mercury (Total)	7439-97-6	2	0.5				0.05	c	2	2
Methanol	67-56-1			4,000	50,000		70	c, e	50,000	4,000
Methoxychlor	72-43-5	40	10				0.1	c	40	40
Methyl acetate	79-20-9			7,000	5,000		0.5	c, e	7,000	7,000
Methyl bromide (Bromomethane)	74-83-9	10	2				1	c	10	10
Methyl chloride (Chloromethane)	74-87-3	30	2			Delete		a	30	Delete
Methylene chloride	75-09-2	2	2	3	2		1	c, e	3	3
Methyl ethyl ketone (2-Butanone) (MEK)	78-93-3	300	NA				2	c	300	300
3-Methyl-4-chlorophenol	59-50-7	NA	20	100	20	Delete		a, h	100	Delete

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4-Methyl-2-pentanone (MIBK)	108-10-1	400	NA			Delete		a	400	Delete
Methyl Salicylate	119-36-8			4,000	50			e	4,000	4,000
Methyl tertiary butyl ether (MTBE)	1634-04-4			70	1			e	70	70
Mirex	2385-85-5	0.01	NA			0.1	0.08	b, c	0.01	0.1
Molybdenum	7439-98-7			30	10	40	2	b, c, d, e	30	40
Naphthalene	91-20-3			300	2			e	300	300
Nickel (Soluble salts)	7440-02-0	100	10				4	c	100	100
Nitrate	14797-55-8	10,000	400				100	c	10,000	10,000
Nitrite	14797-65-0	1,000	400				10	c	1,000	1000
Nitrate and Nitrite		10,000	NA				10	c	10,000	10,000
Nitrobenzene	98-95-3	3	10			4	6	b, c, d	10	6*
N-Nitrosodimethylamine	62-75-9	0.0007	20				0.8	c	20	0.8*
N-Nitrosodiphenylamine	86-30-6	7	20				10	c	20	10*
N-Nitrosodi-n-propylamine (Di-n-propylnitrosamine)	621-64-7	0.005	20				10	c	20	10*
Odor		3 <sup>pp</sup>	NA					No change	3 <sup>pp</sup>	3 <sup>pp</sup>
Oil & Grease & Petroleum Hydrocarbons		None Noticeable	NA					No change	None Noticeable	None Noticeable
Oxamyl	23135-22-0	200	20				1	c	200	200
Parathion	56-38-2			4	0.08			e	4	4
PBBs (Polybrominated biphenyls)	67774-32-7			0.004	0.001			e	0.004	0.004
PCBs (Polychlorinated biphenyls)	1336-36-3	0.02	0.5					No change	0.5	0.5*
Pentachlorophenol	87-86-5	0.3	1				0.1	c	1	0.3
pH (measure by pH units)		6.5-8.5	NA					No change	6.5-8.5	6.5-8.5
Phenanthrene	85-01-8	NA	10	100	0.4	Delete		a	100	Delete
Phenol	108-95-2	4,000	10			2,000		b	4,000	2,000
Picloram	1918-02-1	500	1					No change	500	500
Pyrene	129-00-0	200	20				0.1	c	200	200
Salicylic acid	69-72-7			80	25		30	c, e	80	80
Selenium (Total)	7782-49-2	50	10			40	4	b, c, d	50	40
Silver	7440-22-4	NA	2	30	10	40	1	b, c, d, e	30	40
Simazine	122-34-9	1	0.8			0.3		b, f	1	0.8*
Sodium	7440-23-5	50,000	400					No change	50,000	50,000
Styrene	100-42-5	100	5				2	c	100	100
Sulfate	14808-79-8	250,000	5,000					No change	250,000	250,000
Taste		N.O.	NA					No change	N.O.	N.O.
TDS (Total Dissolved Solids)		500,000	10,000					No change	500,000	500,000
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746-01-6	0.0000002	0.01				0.00001	c	0.01	0.00001*
1,1,1,2-Tetrachloroethane	630-20-6	10	NA			1	1	b, c, f	10	1

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Constituent	CASRN	Current Table 1 Criteri on	Current Table 1 PQL	Interim Specific Criterion	Interim Specific PQL	Proposed Criterion	Proposed PQL	Reasons For Changes (see footnotes)	Current Standard	Proposed Standard
1,1,2,2-Tetrachloroethane	79-34-5	2	1	1	1			e	1	1
Tetrachloroethylene (PCE)	127-18-4	0.4	1					No change	1	1*
2,3,4,6-Tetrachlorophenol	58-90-2	NA	10			200	3	b, c	NA	200
Tetrahydrofuran	109-99-9			10	20		10	c, e	20	10
Thallium	7440-28-0	0.5	10				2	c	10	2*
Toluene	108-88-3	1,000	5				1	c	1,000	1,000
Toxaphene	8001-35-2	0.03	3				2	c	3	2*
2,4,5-TP (2-(2,4,5-Trichlorophenoxy)propionic acid)	93-72-1	50	5			60	0.6	b, c, d	50	60
1,2,4-Trichlorobenzene	120-82-1	9	1					No change	9	9
1,1,1-Trichloroethane (TCA)	71-55-6	30	1					No change	30	30
1,1,2-Trichloroethane	79-00-5	3	2					No change	3	3
Trichloroethene (TCE)	79-01-6	1	1					No change	1	1
Trichlorofluoromethane (Freon 11)	75-69-4			2,000	10		1	c, e	2,000	2,000
2,4,5-Trichlorophenol	95-95-4	700	10					No change	700	700
2,4,6-Trichlorophenol	88-06-2	3	20			1		b	20	20*
1,2,3-Trichloropropane	96-18-4			0.005	2		0.03	c, e	2	0.03*
Vanadium Pentoxide	1314-62-1			60	20		1	c, e	60	60
Vinyl Acetate	108-05-4			7,000	5			e	7,000	7,000
Vinyl Chloride	75-01-4	0.08	5				1	c	5	1*
Xylenes (Total)	1330-20-7	40	2	1,000	2			e	1,000	1,000
m&p-Xylenes	NA	NA	2			Delete		a4	NA	Delete
o-Xylene	NA	NA	1			Delete		a4	NA	Delete
Zinc	7440-66-6	5,000	30			2,000	10	b, c	5,000	2,000
Microbiological criteria	Standards Promulgated in Safe									
Radionuclides	Drinking Water Act Regulations									
Turbidity	(N.J.A.C. 7:10-1 et seq.)									

### "Reason for Change" Column Footnotes

- a** = Deleted from Table 1. Insufficient health-based information available; constituent will be regulated using the interim generic provisions found in proposed N.J.A.C. 7:9C-1.7(c)5 and Appendix Table 2.
  - a2** = Deleted from Table 1. Since there is a criterion for 1,3-Dichloropropene (cis and trans), the criteria for the individual isomers of 1,3-Dichloropropene are being deleted.
  - a3** = Deleted from Table 1. Since there is a criterion for 2,4-Dinitrotoluene/2,6-Dinitrotoluene mix, the criterion for 2,6-Dinitrotoluene is being deleted.
  - a4** = Deleted from Table 1. Since there is a criterion for total Xylenes, the criteria for m & p-Xylenes and o-Xylene are being deleted.
  - b** = Health-based criterion has been updated; see Basis & Background document for toxicity factors.
  - c** = PQL has been updated; see Basis & Background document for analytical method and source.
  - d** = RfD rounded to one significant figure or other rounding issue resulted in change to criteria; see Basis & Background document for discussion.
  - e** = Interim specific criteria and PQL being proposed for adoption.
  - f** = Group C policy applied to health-based criteria; see Basis & Background document for details.
  - g** = CASRN updated to correspond with CASRN used in IRIS if available or to correct typographic error in existing rule.
  - h** = 3-Methyl-4-chlorophenol (CASRN 59-50-7) was also listed in existing rule as 4-Chloro-3-methylphenol; both are being deleted from table.
  - i** = New criterion and PQL is being proposed.
- No change** = No revisions to health-based criterion or PQL.

### Table Footnotes

- \* = Indicates proposed standard is based on PQL (health-based criterion is less than PQL).
- NA = Not available for this constituent (original footnote from existing Table 1).
- # = Asbestos criterion is measured in terms of fibers/L longer than 10 micrometers (f/L > 10 um)
- CU = Standard Cobalt Units
- @ = Odor Threshold Number
- N.O.= None Objectionable



### **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. Ground water is accessed directly through the use of wells. Approximately 40% of the State's potable waters are from ground water sources. About 2.2 million people (out of an estimated 8.4 million total population in New Jersey) 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 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 is intimately associated with the health of wetlands.

The Ground Water Quality Standards (GWQS) proposed for readoption with amendments will enable the Department to continue to authorize activities designed to restore, enhance and maintain the chemical, physical, and biological integrity of the State's surface and ground waters. For example, the Department uses the GWQS to develop effluent limitations for the permits issued to ground water dischargers under the New Jersey Pollutant Discharge Elimination System. The Site Remediation and Waste Management Program uses the GWQS in determining remediation standards for discharges of hazardous substances to ground water.

Readoption of the GWQS will also enable the Department to utilize consistent, current and scientifically based standards, policies and procedures to protect, maintain and restore ground water quality. The proposed amendments, specifically the revisions to update the health-based criteria PQLs and the criteria derivation process, will further strengthen the GWQS as a regulatory tool to ensure the protection and preservation of ground water as a potential source of potable water.

The GWQS are necessary to determine appropriate standards for discharges to ground water or remediation standards for ground water, to evaluate whether the existing ground water quality is unimpaired, and to or establish classification exception areas (CEA) where use of ground water for potable water supply needs to be restricted due to anthropogenic or natural constituents.

### **Economic Impact**

Approximately 40% of the State's potable water is from ground water sources. About 2.2 million people (out of an estimated 8.4 million total population in New Jersey) rely on ground water from about 2,500 public supply wells. An estimated 1.1 million additional people rely on ground water from private domestic wells. The Department has estimated that as of December 2003, 65 % of all the known contaminated sites in New Jersey have some level of ground water contamination. Ground water contamination, in turn, can impact surface water quality and drinking water supplies. The Water Supply Bond Contaminated Wellfield Loan Program provided \$30.5 million in loans between 1983 and 1994 to restore water supply. The Drinking Water State Revolving Fund Loan Program provided loans between 1998-2003 for a total of \$14.6 million. The Spill Fund program has provided \$14 million on installation and maintenance of Point of Entry Treatment Systems for homeowners whose wells have been contaminated. In addition, every year, responsible parties spend additional funds to provide safe drinking water caused by discharges at their sites. The number of cases involving impacted drinking water sources increases every year.

The proposed readoption of the GWQS rules with amendments will have an economic impact on those persons who have or are seeking New Jersey Pollutant Discharge Elimination System (NJPDES) ground water discharge permits and persons responsible for conducting the remediation of contaminated sites. Currently 967 facilities are regulated by the NJPDES program to discharge to ground water for activities other than ground water remediation. All new NJPDES permits for discharges to ground water issued under N.J.A.C. 7:14A will be based on the amended GWQS. For existing permits, the Department will impose new effluent limitations upon permit renewal, as necessary.

The Department has identified approximately 12,000 known contaminated sites. Approximately 60 percent involve ground water contamination. The Department estimates that 2,000 new contaminated sites are expected to be added to the list of known contaminated sites each year. The amended GWQS may significantly affect the remediation of contaminated sites to the extent that a remediator may have to modify a remediation plan to address previously unregulated ground water constituents or to remediate ground water to achieve a more restrictive standard. New remediation standards will be applied to new cases and to cases for which the responsible party has not submitted a remedial action workplan (RAW) or similar document at the time the amended GWQS become effective. The person responsible for conducting the remediation will be responsible for remediating ground water to the amended standards.

Additionally, pursuant to the "order of magnitude" provision of the Brownfield and Contaminated Site Act, N.J.S.A. 58:10B-12(j), under certain circumstances, the Department may compel additional remediation when a remediation standard changes. This provision states that, even if the Department has approved a RAW or similar plan or has issued a no further action (NFA) letter for a site, the Department may compel the use of a new remedial standard if the change in the standard is an order of magnitude or greater. Therefore, for sites with a RAW (or similar approval) or NFA where the change in the remediation standard is greater than an order of magnitude, the Department may review the case specifics to determine if the selected remedial action remains protective of human health and the environment. If the Department determines that the prior standard is not protective in light of the revised standard, further remediation may be required.

The Department has proposed numerous changes to the Ground Water Quality Standards listed in Appendix Table 1. The standards for several constituents will be less stringent and some will be more stringent and will impact the costs associated with discharges to ground water or remediation of ground water contamination. The criteria that are not proposed for amendment as well as the incorporation of existing interim specific criteria as specific criteria in Appendix Table 1 are not expected to impact the cost of discharge or remediation as these criteria are already being utilized by the Department's regulatory programs.

The overall impact on facilities discharging to ground water pursuant to a NJPDES permit or remediating a contaminated site pursuant to the Technical Requirements for Site Remediation, N.J.A.C. 7:26E, will depend on many factors such as the size of the plume, the volume and type of wastewater being discharged, the contaminants in the wastewater or contaminated ground water, the number of monitoring wells required and the type of treatment currently used. If the constituent standard as a result of these amendments is less stringent, it is possible that the area of contaminated ground water would be smaller or no longer considered contaminated. Delineation requirements for a smaller plume would likely require fewer monitoring wells and the remediation of such a plume could take less time. Of course, these impacts would be dependent upon the presence of other contaminants and other site-specific factors.

The proposed amendments will also make the standards for some constituents more stringent. Persons discharging to ground water under a NJPDES permit might be required to utilize more costly or extensive water treatment. More stringent constituent standards may result in different remediation

requirements. The size of a ground water contamination plume could be significantly greater for a more stringent standard. Delineation requirements for a larger plume would likely require more wells, more monitoring and the remediation of such a plume could take more time. These impacts will be dependent upon the presence of other contaminants and other site-specific factors.

It is difficult to assign a specific dollar value to the impact of the proposed amendments to the GWQS due to the variability in the complexity of remediating contaminated ground water and discharges to ground water throughout the State, and the remedies and treatment options selected at individual sites. The Department believes that, in most cases, best available technology is currently being used to remediate ground water or to treat discharges to ground water. Treatment systems generally are able to achieve a 99 percent reduction of volatile organic and other synthetic organic chemicals and a 90 percent reduction of metals. Because these systems are generally able to remove contaminants to very low levels, best available technology systems would still effectively treat ground water to the new proposed standards. However, the duration of the treatment needed to remediate larger plumes may be longer and the Department is unable to accurately estimate these impacts as they are highly dependent upon site specific conditions.

The proposed standards for several constituents are more stringent, based upon revised practical quantitation levels (PQLs). Regulated entities required to monitor ground water quality will be required to obtain analytical services from a New Jersey certified laboratory capable of achieving the new PQLs. Due to the methods used by the Department to develop the PQLs for each constituent, namely, five times the method detection limit using generally available technologies, the majority of certified environmental laboratories should not have any difficulty meeting the proposed new lower PQLs. Laboratories that are unable to achieve the lower PQLs will need to upgrade their analytical equipment, which is generally very costly. The Department anticipates that these increased analytical costs will be passed on to the entities required to monitor ground water quality by the NJPDES program and the Site Remediation and Waste Management Program.

As stated in the summary above, the amendments being proposed to the GWQS are based on the most recent data concerning the impacts of the regulated chemicals on human health. The proposed amendments will provide greater protection of human health and the environment that could result in a positive economic impact to all of the citizens of New Jersey. Since many residents use private wells for

their drinking water supplies, the new standards should improve the protection for this use. In addition to human health, the restoration, enhancement and maintenance of the integrity of the State's surface and ground waters through continued implementation of the GWQS will result in positive economic benefits to the citizens of the State through improved recreational, industrial and agricultural uses of the State's waters.

### **Environmental Impact**

Readoption of the Ground Water Quality Standards (GWQS) with amendments will have a positive environmental benefit. The GWQS enable the Department to regulate discharges to ground water, protect aquifers and set cleanup goals for contaminated sites impacting ground water. In combination with the regulatory programs used to implement the GWQS, this proposal will help to accomplish the State's policy for achieving and protecting water quality as set forth in the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq. and the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq.

Applying these amended standards will ensure that New Jersey's extensive ground and surface water resources are protected from contamination. Protection of these resources is important to ensure the availability ground and surface water for commercial, domestic, industrial and environmental uses. The proposed amendments to the practical quantitation levels (PQLs) and criteria that result in the standards being made more stringent and the incorporation of the interim specific criteria (ISCs) as numeric criteria within the GWQS will have a positive environmental impact. The proposed amendments to the PQLs and criteria that result in the standards being made less stringent are not anticipated to have any adverse environmental impacts. The development of the ISCs and the updates made to the PQLs and specific criteria reflect the most recent scientific and technology data available.

### **Federal Standards Analysis**

Executive Order No. 27 (1994) and P.L. 1995, c.65 (amending 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 Ground Water Quality Standards (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 GWQS do not contain any standards or requirements that exceed those required by Federal law. The GWQS provides the associated ground water standards that are relevant to the New Jersey Underground Injection Control program, RCRA D, and RCRA C ground water monitoring programs at 40 CFR 144-146, 258, and 264. These federal programs are implemented through the NJPDES program.

### **Jobs Impact**

Readoption of the GWQS rules with amendments will continue to result in job opportunities in analytical, environmental consulting and construction contracting services to assess permit compliance and evaluate, design and construct necessary treatment facilities to address discharges. The proposed amendments to the practical quantitation levels and criteria, and the incorporation of the interim specific criteria as numeric criteria, are anticipated to have a negligible effect on job opportunities, although changes to the standards may result in the need for on-site treatment for longer periods of time.

### **Regulatory Flexibility Analysis**

In accordance with the Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has determined that the rules proposed for readoption with amendments to update the practical quantitation levels (PQLs) and ground water quality criteria are not anticipated to have a significant impact on small businesses as defined in the Act. The Ground Water Quality Standards (GWQS) are not implementing

rules and, therefore, they do not directly compel any record keeping or reporting requirements nor, except as discussed below, do they require the use of professional services for compliance.

N.J.A.C. 7:9C-1.10 (recodified N.J.A.C. 7:9-6.10), Procedures for the reclassification of ground water, contains compliance requirements if an applicant (including a small business) seeks reclassification of ground water. The rule requires the reclassification petition to comply with N.J.S.A. 52:14B-4 and N.J.A.C. 7:1D-1.1 and to include certain information on the requested reclassification. Should an applicant decide to pursue an optional reclassification of ground water, additional professional services would be required to demonstrate that the classification change would not result in impairment to existing uses, degrade surface water quality, degrade the source water for public supply wells or other downgradient impacts. The costs that might be incurred in pursuing such reclassification would vary widely depending on the specifics of the reclassification sought and whatever fees would be charged for the professional services employed by the petitioner.

Small businesses will be affected through the administration of the New Jersey Pollutant Discharge Elimination System (NJPDDES) and Site Remediation and Waste Management Program to the extent that these businesses are regulated under these two programs. The NJPDDES 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. The Site Remediation and Waste Management Program requires contaminated sites to be remediated to levels that are protective of public health and the environment. However, the level of remediation of a contaminated site is dependent on the severity of the contamination, not the size of the business. In the instances where the ground water quality standard (the higher of the human health-based criterion or the PQL) was increased, compliance and/or remediation costs may decrease. In cases where the standard was reduced, the costs of compliance/remediation may be increased.

### **Agricultural Industry Impact**

The Ground Water Quality Standards are not self-implementing. They are implemented through the NJPDDES and the Site Remediation and Waste Management programs. The NJPDDES 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 readoption and amendment of these rules via the NJPDES program.

### **Smart Growth Impact**

Executive Order No. 4(2002) requires State agencies which 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 readoption of the Ground Water Quality Standards with amendments regarding incorporation of the interim specific criteria as numeric criteria, and updating the practical quantitation levels and human health-based criteria, do not involve land use policies or infrastructure development and, therefore, will not have an impact on the achievement of smart growth. The readopted rules and amendments 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 is supportive of the goals of the State Plan.

**Full text** of the rules proposed for readoption may be found in the New Jersey Administrative Code at N.J.A.C. 7:9-6.

**Full text** of the proposed amendments follows (additions indicated in boldface **thus**; deletions indicated in brackets [thus ]):

## **CHAPTER 9C GROUND WATER QUALITY STANDARDS**

### **[7:9-6.1] 7:9C-1.1 Scope of [sub]chapter**

(a) Unless otherwise provided by statute, [the following shall constitute] **this chapter constitutes** the rules of the Department of Environmental Protection [and Energy] concerning ground water classification, designated uses of ground water, and ground water quality criteria, and constituent standards, pursuant to the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and the Water Quality Planning Act (N.J.S.A. 58:11A-1 et seq.).



(b) This [sub]chapter [shall provide]**provides** the basis for protection of ambient ground water quality, through the establishment of constituent standards for ground water pollutants. These constituent standards are applicable to the development of: ground water protection standards pursuant to the New Jersey Pollutant Discharge Elimination System (NJPDES; N.J.A.C. 7:14A); ground water [cleanup] **remediation** standards [and compliance levels beyond the boundaries of a contaminated site pursuant to applicable regulatory programs]; and other requirements and regulatory actions applicable to discharges that cause or may cause pollutants to enter the ground waters of the State, including non-point and diffuse sources regulated by the Department. Other relevant laws through which the Ground Water Quality Standards may be applied include, but are not limited to, the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11 et seq.), **the Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10B-1 et seq.)**, the Solid Waste Management Act (N.J.S.A. 13:1E-1 et seq.), the [Environmental Cleanup Responsibility Act] **Industrial Site Recovery Act** (N.J.S.A. 13:1K-6 et seq.), the **Underground Storage of Hazardous Substances Act** (N.J.S.A. 58:10A-21 et seq.), the Realty Improvement Sewerage and Facilities Act (N.J.S.A. 58:11-23 et seq.), and the Pesticide Control Act of 1971 (N.J.S.A. 13:1F-1 et seq.).

(c) This [sub]chapter [shall be] **constitutes** the Department's primary basis for setting numerical criteria for limits on discharges to ground water and standards for ground water [cleanups] **remediation**

**[7:9-6.2] 7:9C-1.2 Policies**

(a) (No change.)

(b) Discharges to ground water that subsequently discharge into surface waters shall not be permitted by the applicable regulatory program if such discharges would cause a contravention of surface water quality standards applicable to those surface waters. That is, those discharges must achieve compliance with both these standards and the surface water quality standards (N.J.A.C. [7:9-4]) **7:9B**).

(c) When existing ground water quality does not meet the constituent standards determined pursuant to N.J.A.C. [7:9-6.7, 6.8 and 6.9(a) and (b)] **7:9C-1.7, 1.8 and 1.9**, due to human activities, the Department shall, after a review of relevant and available scientific and technical data, determine in the context of the applicable regulatory programs the management actions necessary (including, but not limited to, the requirement of remedial actions) to restore or enhance ground water quality pursuant to the policies of this [sub]chapter.

(d) (No change.)

**[7:9-6.3] 7:9C-1.3 Construction**

This [sub]chapter shall be liberally construed to permit the Department to implement its statutory functions.

**[7:9-6.4] 7:9C-1.4 Definitions**

The following words and terms, when used in this [sub]chapter, [shall] have the following meanings:

...

"Alternative concentration limit" [(ACL)] **or "ACL"** means a constituent standard or narrative description of actions, discharge controls and water quality requirements that is less stringent than the ground water quality requirements of N.J.A.C. [7:9-6.7, 6.8 and 6.9] **7:9C-1.7, 1.8 and 1.9** due to a Departmental decision pursuant to NJPDES regulations (N.J.A.C. [7:14A-6.15(e)2]) **7:14A-10.8(b)**). In order to approve an ACL, the Department must find that the relevant constituent standard(s) cannot be achieved through technologically practicable means.

"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. [7:9-6.7] **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. "Non-degradation" 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.

...

"Applicable regulatory program" means any of the Department's programs which implement the regulations issued pursuant to the statutes cited in N.J.A.C. [7:9-6.1(b)] **7:9C-1.1(b)** or in any other regulations that specifically cite this [sub]chapter.

...

"Aquitard" means a hydrogeologic confining unit(s) that exhibits limited permeability, bounding one or more aquifers, that does not readily yield water to wells or springs, but may serve as a storage unit for ground water and may release this water to adjacent ground water units or surface waters. Such

confining units are further defined and listed in N.J.A.C. [7:9-6.5(f)1] **7:9C-1.5(f)1** or may be established through reclassification under N.J.A.C. [7:9-6.10] **7:9C-1.10**.

"Background water quality" means the concentration of constituents in ground water which is determined to exist directly upgradient of a discharge but not influenced by the discharge, or is otherwise representative of such concentration of constituents as determined using methods and analyses consistent with the requirements of N.J.A.C. [7:14A-6.15(h)7] **7:14A-10.11(g)**.

**"Carcinogen" means a constituent capable of inducing a cancer response, including Group A (Human Carcinogen), Group B (Probable Human Carcinogen) or Group C (Possible Human Carcinogen) categorized in accordance with the USEPA Guidelines for Carcinogen Risk Assessment, 51 Fed. Reg. 33932, 1986 as amended or supplemented and incorporated by reference.**

"Classification area" means the geographic extent (lateral and vertical) of a geologic formation(s) or unit(s) wherein ground water is classified for designated uses, as described in N.J.A.C. [7:9-6.5] **7:9C-1.5**.

"Classification exception area" means an area within which one or more constituent standards and designated uses are suspended in accordance with N.J.A.C. [7:9-6.6] **7:9C-1.6**.

**"Conservation restriction" means the restricting of development on property as that term is defined under the New Jersey Conservation Restriction and Historic Preservation Restriction Act, N.J.S.A. 13:8B-1 et seq.**

...

"Constituent standard" means the required maximum level or concentration or the required range of levels or concentrations (as applicable) for a constituent in a classification area, as established in N.J.A.C. [7:9-6.7, 6.8 and 6.9(a) and (b)] **7:9C-1.7, 1.8 and 1.9 (a) and (b)**. The constituent standards shall be the basis for the Department's regulation of ground water quality effects of past, present or future discharges to ground water or the land surface, pursuant to applicable authorities as defined in N.J.A.C. [7:9-6.1] **7:9C-1.1**.

...

"Department" means the New Jersey Department of Environmental Protection [and Energy].

"Designated use" means a present or potential use of ground water which is to be maintained, restored and enhanced within a ground water classification area, as determined by N.J.A.C. [7:9-6.5] **7:9C-1.5**. Designated uses may include any human withdrawal of ground water (for example, for potable, agricultural and industrial water), the discharge of ground water to surface waters of the State which support human use or ecological systems, or the direct support of ecological systems.

...

"Extensive exceedance", as used in N.J.A.C. [7:9-6.10] **7:9C-1.10**, means a condition where ground water quality in an area exceeds the criteria of N.J.A.C. [7:9-6.7] **7:9C-1.7** for one or more [contaminants] **constituents** over the vast majority subject area for such [contaminant(s)] **constituent(s)** and that such exceedances are not attributable to the past or present discharges of a single discharger or any group of active NJPDES permitted discharges.

"FW1" means those surface fresh waters defined as such in the Surface Water Quality Standards, N.J.A.C. [7:9-4] **7:9B** and shown on maps maintained by the Department.

...

**"Ground water quality criteria" means the designated levels or concentrations of constituents that, when exceeded, will prohibit or significantly impair a designated use of water. Criteria may be "specific" (listed for each constituent in Appendix Table 1), "interim specific" (derived using a standard method, for constituents not listed in Appendix Table 1), or "interim generic" (as listed for carcinogenic and non-carcinogenic Synthetic Organic Chemicals in Appendix Table 2).**

"Natural Area" means an area of land or water, designated by the Department under N.J.A.C. [7:2-11] **7:5A-1.13** and shown on maps maintained by the Office of Natural Lands Management, Division of Parks and Forestry, of the Department, which is owned in fee simple or in which a conservation [easement] **restriction** is held by the Department.

...

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**"Non-carcinogen" means a constituent not categorized as a carcinogen, including Group D (Not Classifiable as to Human Carcinogenicity) or Group E (Evidence of Non-Carcinogenicity for Humans) categorized in accordance with the USEPA Guidelines for Carcinogen Risk Assessment, 51 Fed. Reg. 33932, 1986 as amended or supplemented and incorporated by reference.**

...

"Practical quantitation level" (PQL) means the lowest concentration of a constituent that can be reliably achieved among laboratories within specified limits of precision and accuracy during routine laboratory operating conditions. "Specified limits of precision and accuracy" are the criteria which have been included in applicable regulations including, but not limited to, those regulations listed at N.J.A.C. [7:9-6.9] **7:9C-1.9** or are listed in the calibration specifications or quality control specifications of an analytical method.

...

["Water quality criteria" means the designated levels or concentrations of constituents that, when not exceeded, will not prohibit or significantly impair a designated use of water. Criteria may be "specific" (listed for each constituent in Table 1), "interim specific" (derived using a standard method, for constituents not listed in Table 1), or "interim generic" (as listed for carcinogenic and non-carcinogenic Synthetic Organic Compounds in Table 2).]

...

**[7:9-6.5] 7:9C-1.5 Ground water classification system and designated uses**

(a) Ground water [shall be] **is** classified according to the hydrogeologic characteristics of the ground water resource and the designated use(s) which are to be maintained, restored and enhanced within the classification area. Classifications [shall be] **are** regional in nature and [shall] **do** not reflect localized infringements on designated uses due to natural quality or pollution incidents. Ground water users should not assume that existing ground water quality everywhere meets the criteria for classification areas established herein, in view of the potential for variations in natural quality or for localized pollution caused by human activity. Additional uses may be made of ground water in any classification area, subject to applicable Department rules, but these uses are not directly protected through this [sub]chapter.

(b) (No change.)

(c) There [shall be] **are** three major classes of ground water, as defined in paragraphs (d) through (f) below. They are:

Class I Ground Water of Special Ecological Significance

Class II Ground Water for Potable Water Supply

Class III Ground Water With Uses Other Than Potable Water Supply

(d) The primary designated use for Class I ground water [shall be] **is** the maintenance of special ecological resources supported by the ground water within the classification area. Secondary designated uses [shall be] **are** potable water, agricultural water and industrial water to the extent that these uses are viable using water of natural quality and do not impair the primary use, such as by altering ground water quality.

1. Class I-A -- Exceptional Ecological Areas: Class I-A ground water [shall] **consist** of all ground waters within those classification areas listed at (d)1iii below or designated by the Department through the reclassification procedure in N.J.A.C. [7:9-6.10] **7:9C-1.10**, which satisfy either (d)1i or ii below. In addition, ground waters within those areas listed in (d)1iii below are classified as Class I-A ground waters, because the Department has determined that they satisfy the requirements of either (d)1i or ii below. The Department may approve a Class I-A classification area if the ground water within that area:

i. Contributes to the transmittal of ground water to surface water in FW1 watersheds; and

(1) The area involved is under government ownership (fee simple or conservation [easement] **restriction**); or

(2) Is owned by a private entity that petitions the Department for reclassification of the property to Class I-A pursuant to N.J.A.C. [7:9-6.10] **7:9C-1.10**; or

ii. Contributes to the transmittal of ground water to the land surface or to surface water in areas of exceptional ecological value. Areas of exceptional ecological value satisfy the conditions described in (d)1ii(1), (2) or (3) below, and also satisfy the conditions described in both (d)1ii(4) and (5) below:

(1) - (4) (No change.)

(5) The area involved is of sufficient size to provide meaningful control of ground water quality to protect the target resource, based upon the biotic resource and local hydrogeology and is under government ownership (fee simple or conservation [easement] **restriction**), or is owned by a

private entity that petitions the Department for reclassification of the property to Class I-A pursuant to N.J.A.C. [7:9-6.10] **7:9C-1.10**.

iii. Ground water within the following areas are herein classified Class I-A:

(1) (No change.)

(2) The [following] Natural Areas as designated by the Department

pursuant to N.J.A.C. [7:2-11] **7:5A-1.13**. [:

Absegami Natural Area

Allamuchy Natural Area

Batsto Natural Area

Bearfort Mountain Natural Area

Bear Swamp East Natural Area

Black River Natural Area

Cape May Point Natural Area

Cedar Swamp Natural Area

Cheesequake Natural Area

Cook Natural Area

Dryden Kuser Natural Area

Dunnfield Creek Natural Area

Farny Natural Area

Hacklebarney Natural Area

Island Beach Northern Natural Area

Island Beach Southern Natural Area

Ken Lockwood Gorge Natural Area

Manahawkin Natural Area

Oswego River Natural Area

Parvin Natural Area

Ramapo Lake Natural Area Natural Area

Rancocas Natural Area

Sunfish Pond Natural Area

Swimming River Natural Area

Tillman Ravine Natural Area

Troy Meadows Natural Area

Washington Crossing Natural Area

Wawayanda Hemlock Ravine Natural Area

Wawayanda Swamp Natural Area

Whittingham Natural Area]

2. (No change.)

(e) **The primary designated use for** Class II ground waters [have a designated use of] **is** the provision of potable ground waters with conventional water supply treatment, either at their current water quality (Class II-A) or subsequent to enhancement or restoration of regional water quality so that the water will be of potable quality with conventional water supply treatment (Class II-B). Both existing and potential potable water uses are included in the designated use.

1. (No change.)

2. Specific Class II-B areas, designated uses and constituent standards will be established through rule or through reclassification pursuant to N.J.A.C. [7:9-6.10] **7:9C-1.10**. The designated uses of Class II-B areas generally may include any reasonable use (other than potable use). Designated uses of Class II-B ground water shall not exacerbate existing ground water pollution or impede the ability to enhance or restore the quality of the ground water so that it will be potable or convertible to potable use with conventional water supply treatment, mixing or other similar techniques. Class II-B shall consist only of ground waters:

i. That exhibit extensive exceedance of one or more of the ground water quality criteria in N.J.A.C. [7:9-6.7(c)] **7:9C-1.7(c)** within the proposed Class II-B area, due to past discharges of ground water pollutants;

ii. – v. (No change.)

vi. Where the reclassification requirements of N.J.A.C. [7:9-6.10] **7:9C-1.10** are met.

3. (No change.)

(f) (No change.)

**[7:9-6.6] 7:9C-1.6 Exceptions to the classification system**

(a) (No change.)

(b) Where natural quality for any constituent contravenes the criteria established in N.J.A.C. [7:9-6.7] **7:9C-1.7** such that the primary designated use is not viable within a limited area, the Department may



establish a Classification Exception Area within which the Department shall define appropriate designated uses and constituent standards, based upon the natural quality. Such Classification Exception Areas shall remain in effect as long as the primary designated use of the original classification area is not viable using ground water at natural quality.

(c)-(d) (No change.)

**[7:9-6.7] 7:9C-1.7 Ground water quality criteria**

(a) Ground water quality criteria for Class I-A areas [shall be] **are** the natural quality for each constituent. Class I-A is a non-degradation classification where natural quality [shall] **is to** be maintained or restored. The Department shall not approve any discharge to ground water [n]or approve any human activity which results in a degradation of natural quality within a Class I-A classification area.

(b) Ground water quality criteria for Class I-PL are as follows:

1. – 2. (No change.)

3. The Department shall not approve any discharge to ground water within the Class I-PL classification area which results in a violation of the Surface Water Quality Standards applicable to the Pinelands National Reserve, as established in N.J.A.C. [7:9-4] **7:9B** or successor rules.

(c) Ground water quality criteria for Class II-A **areas** are **established** as follows:

1. Specific criteria for ground water quality in Class II-A areas are listed in **Appendix** Table 1[ in the Appendix].

[2. Where a specific criterion is not listed for a constituent in Table 1, the Department may establish interim specific criteria for Class II-A ground water based upon the weight of evidence available regarding each constituent's carcinogenicity, toxicity, public welfare or organoleptic effects, as appropriate for the protection of the potable water use. Interim specific criteria may be established on a case by case basis using the methods listed in (c)3 below, which are the same methods applied to the development of the specific criteria in Table 1. Interim specific criteria shall be replaced with specific criteria as soon as reasonably possible by rule.

3. Interim specific criteria may be derived by the Department for any constituent, in accordance with the methodologies in (c)5 below, and using the risk assessment approach in (c)4 below. The Department shall maintain and make available to the public a listing of all interim specific criteria and the supplemental information used in their derivation.

i. The human health-based criteria are derived from the toxicity factor (carcinogenic potency slope or Reference Dose), the exposure assumptions for drinking water and a relative source contribution factor (for non-carcinogens) which is used to account for the contribution from other sources of exposure including air and food. The Department assumes a 20 per cent relative source contribution factor when sufficient quantitative data are not available on the contribution of each source of exposure. Data sources for carcinogenic potency factor or Reference Dose used in the following order of priority:

(1) Information which forms the basis for drinking water standards adopted by the Department pursuant to the Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq.;

(2) The United States Environmental Protection Agency (USEPA) Integrated Risk Information System (IRIS) data base;

(3) The USEPA's Health Effects Assessment Summary Tables (HEAST);

(4) The Department may develop health-based criteria which differ from those based on the sources cited in (c)3i(1) through (3) above if warranted by convincing scientific evidence.

For contaminants which are not addressed in the sources cited in (c)3i(1) through (3) above, the Department may develop health-based criteria based on a review of pertinent scientific data.

ii. The final calculations are rounded to one significant figure for deriving the criteria for each chemical.

4. The risk assessment approach for derivation of the health-based criteria for each contaminant will be determined by its strength of evidence (see 50 FR 46880, 46884-86 (1985), National Primary Drinking Water Regulations, Volatile Synthetic Organic Chemicals, and any successor documents) for human carcinogenicity, the risk levels given below, and the exposure assumptions and models listed in (c)3 above.

i. For contaminants classified in Group A or Group B, the Class II-A criteria are calculated from the potency factor based on additional lifetime cancer risk of  $1 \times 10^{-6}$ .

ii. For contaminants classified in Group C, the Class II-A criteria are calculated by application of an additional uncertainty factor of 10 to the chronic reference dose. If no reference dose is available from the sources cited in (c)3i above, the Class II-A criteria are calculated from the potency factor or unit risk factor based on additional lifetime cancer risk of  $1 \times 10^{-5}$

iii. For contaminants classified in Group D or Group E, the Class II-A criteria are calculated from the chronic reference dose.

iv. For lead, the Department has determined that a Class II-A criterion of five ug/L is appropriate as a conservative application of the regulations of the United States Environmental Protection Agency seeking a maximum concentration of five ug/L in drinking water subsequent to treatment.

5. The following equations shall be used for the derivation of interim specific criteria for each constituent:

i. For Carcinogens:

$$\text{Criterion} = \frac{(1 \times 10^{-6}) \times 70 \text{ kg} \times 1000 \text{ ug/mg}}{q_1^* (\text{mg/kg/day})^{-1} \times (2 \text{ L/day})}$$

Where:

- $1 \times 10^{-6}$  = upper bound lifetime excess cancer risk  
( $1 \times 10^{-5}$  used for Group C chemicals lacking RfD)
- 70 kg = assumed weight of average adult
- $q_1^*$  = carcinogenic potency factor  $(\text{mg/kg/day})^{-1}$
- 2 L/day = assumed daily water consumption
- $q_1^*$  = Risk/Dose

$$q_1^* (\text{mg/kg/day})^{-1} = \frac{1 \times 10^{-6}}{\text{animal dose (mg/kg/day)} \times (W_A/W_H)^{1/3}}$$

Where:

- $1 \times 10^{-6}$  = risk level
- animal dose = dose to experimental animals predicted to result in  $1 \times 10^{-6}$  risk
- $(W_A/W_H)^{1/3}$  = factor for extrapolating from animals to humans based on body surface area
- $W_A$  = assumed weight of animal:  
for mice - 0.03 kg  
for rats - 0.35 kg
- $W_H$  = assumed weight of human = 70 kg  
For mice  $(W_A/W_H)^{1/3} = 0.075$   
For rats  $(W_A/W_H)^{1/3} = 0.17$

ii. For non-carcinogens:

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$$\text{Criterion} = \frac{\text{RfD (mg/kg/day)} \times 70 \text{ kg} \times 1000 \text{ ug/mg} \times \text{RSC}}{2 \text{ L/day}}$$

Where:

- RfD = Reference Dose  
70 kg = assumed weight of average adult  
RSC = relative source contribution  
2 L/day = assumed daily water consumption

6. Where no specific criterion exists for a Synthetic Organic Chemical, the interim generic criteria for Synthetic Organic Chemicals in Table 2 in the Appendix shall apply until an interim specific criterion has been established in accordance with (c)1, 2, 3, 4, and 5 above.]

**2. The Department may establish an interim specific criterion, pursuant to (c)3 below, for a constituent not listed in Appendix Table 1.**

**i. The Department shall maintain and make available to the public on its website and by request a listing of all interim specific criteria and the supplemental information used in their derivation.**

**ii. Interim specific criteria shall be replaced with specific criteria as soon as reasonably possible by rule.**

**3. The Department shall establish ground water quality criteria as follows:**

**i. If the Department promulgates in the Safe Drinking Water Act rules at N.J.A.C. 7:10 a maximum contaminant level (MCL) for a constituent, the health-based level used to establish the MCL shall be the specific ground water quality criterion for the constituent.**

**ii. For all other constituents, the Department shall develop ground water quality criteria for Class II-A ground water based upon the weight of evidence available regarding each constituent's carcinogenicity, toxicity, public welfare or organoleptic effects, as appropriate for the protection of potable water, pursuant to (c)4 below.**

**4. The Department shall use the following equations, data sources and conventions at i through iii below to derive specific and interim specific ground water quality criteria:**

**i. For constituents categorized as carcinogens, the criteria shall be derived using the following equation:**

$$\text{Criterion (ug/L)} = \frac{\text{Upper Bound Lifetime Excess Cancer Risk} \times \text{Carcinogenic Slope Factor}}{\text{Average Adult Weight} \times \text{Assumed Daily Water Consumption}} \times \text{Conversion Factor}$$

Where the default values are:

- Average Adult Weight = 70 kg
- Assumed Daily Water Consumption = 2 liters per day
- Upper Bound Lifetime Excess Cancer Risk =  $1 \times 10^{-6}$
- Conversion Factor = 1,000 ug/mg
- Carcinogenic Slope Factor = value from the United States Environmental Protection Agency (USEPA) Integrated Risk Information System (IRIS) data base, <http://www.epa.gov/iris/> as (mg/kg/day)<sup>-1</sup> and incorporated by reference

ii. For constituents classified as non-carcinogens and for constituents classified as carcinogens for which no carcinogenic slope factor is applicable, the criterion shall be derived using the following equation:

$$\text{Criterion (ug/L)} = \frac{\text{Reference Dose} \times \text{Average Adult Weight} \times \text{Conversion Factor} \times \text{Relative Source Contribution}}{\text{Assumed Daily Water Consumption} \times \text{Uncertainty Factor}}$$

Where the default values are:

- Average Adult Weight = 70 kg
- Relative Source Contribution = 20 Percent
- Assumed Daily Water Consumption = 2 liters per day
- Conversion Factor = 1,000 ug/mg
- Reference Dose = value from the USEPA IRIS data base, <http://www.epa.gov/iris/>, as (mg/kg/day) and incorporated by reference
- Uncertainty Factor = 10 for carcinogens for which no carcinogenic slope factor is applicable; 1 for non-carcinogens

**iii. The criteria derived by the equations in (c)4 shall be rounded to one significant figure.**

**5. The Department shall publish in the New Jersey Register a notice of administrative change subsequent to (the effective date of this amendment):**

**i. To modify or add a new specific criterion to Appendix Table 1 when the Department promulgates in the Safe Drinking Water Act rules at N.J.A.C. 7:10 a new or revised maximum contaminant level (MCL) for a groundwater constituent; or**

**ii. To modify a specific criterion in Appendix Table 1 where the USEPA revises the carcinogenic slope factor or reference dose data contained in the Integrated Risk Information System (IRIS) database on which a specific ground water quality criterion in Appendix Table 1 is based.**

**iii. The notice of administrative change shall identify the constituent, the basis for the administrative change and the revised criterion to be listed in Appendix Table 1.**

**6. For a Synthetic Organic Chemical not listed in Appendix Table 1 the applicable interim generic criterion in Appendix Table 2 shall apply until an interim specific criterion is developed or a specific criterion is promulgated in accordance with this subsection.**

(d) – (g) (No change.)

(h) For constituents for which specific or interim specific criteria have been derived, the Department may evaluate potential toxicological interactions between or among [contaminants] **constituents** in ground water by the sum of the risk levels of [contaminants] **constituents** with health-based criteria that are based on carcinogenic risk, and by utilizing the hazard index approach described in the USEPA Guidelines for the Health Risk Assessment of Chemical Mixtures (51 FR 34014 (1986), and any subsequent revisions) for non-carcinogens. Additional actions and more stringent criteria may be required when either of the following conditions exists:

1. The total risk level for all [Group A, or Group B contaminants] **carcinogens** present in ground water exceeds  $1 \times 10^{-4}$ ; or

2. (No change.)

(i) (No change.)

**[7:9-6.8] 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. [7:9-6.7] **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. [7:9-6.9(a) and (b)] **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. [7:9-6.7] **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. [7:9-6.7] **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:

$$\text{Constituent Standard} = \text{BWQ} + (\text{GWQC} - \text{BWQ}) \times \%$$

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. [7:9-6.7(d)] **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. [7:9-6.7(e)] **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. [7:9-6.7(f)] **7:9C-1.7(f)**.

**[7:9-6.9] 7:9C-1.9 Constituent standard modifications and practical quantitation levels**

(a) When constituents at background water quality exceed the criteria in N.J.A.C. [7:9-6.7] **7:9C-1.7**, the Department shall consider the following modifications in the development of constituent standards in the context of applicable regulatory programs:

1. – 2. (No change.)

(b) The Department may define Classification Exception Areas as provided for in N.J.A.C. [7:9-6.6] **7:9C-1.6** within which the provisions of N.J.A.C. [7:9-6.7, 6.8] **7:9C-1.7, 1.8**, and (a) above do not apply regarding specified constituents.

(c) Where a constituent standard (the criterion as adjusted by the antidegradation policy and applicable criteria exceptions)[:] is of a lower concentration than the relevant PQL (**in Appendix** Table 1[in the Appendix]), the Department shall not (in the context of an applicable regulatory program) consider the discharge to be causing a contravention of that constituent standard so long as the concentration of the constituent in the affected ground water is less than the relevant PQL.

1. (No change.)

2. [No PQLs other than those listed in Table 1 in the Appendix are applicable to or shall be derived for interim generic criteria.] **Specific PQLs are not provided for interim generic ground water criteria. The numeric interim generic ground water criteria shall be used as the constituent standard unless a PQL applicable for an interim generic criteria is approved by the Department and published with the interim generic criteria in accordance with (c)3 below.**

3. Selection and derivation of PQLs shall be as follows:

i. (No change.)

ii. PQLs listed in **Appendix** Table 1 were, and additional PQLs shall be, derived or selected for each constituent using the most sensitive analytical method providing positive constituent identification from (c)3ii(1) [through (5)] **and (2)** below, in that order of preference:

(1) PQLs for a specific constituent and analytical method using the USEPA 500 series methods, which PQLs were derived through scientific studies conducted by the Department in support of the Safe Drinking Water Program;

(2) PQLs for a specific constituent and analytical method using the USEPA 500 series or 600 series methods (in order of preference, and provided that the method is currently in use by Department-certified laboratories), which PQLs were adopted by the USEPA in support of the Safe Drinking Water Program;

(3) PQLs derived by multiplying times a factor of five, a median, Interlaboratory Method Detection Limit (MDL). The Interlaboratory MDL is derived from verified MDL



data from Department-certified laboratories for the USEPA 500 series or 600 series methods (in order of preference);

(4) PQLs derived by multiplying times a factor of 10, the MDL published by EPA for a specific constituent and analytical method for the USEPA 500 series or 600 series methods (in order of preference);

(5) PQLs for aqueous matrices published by EPA in "Test Method for Evaluating Solid Waste," Publication SW846, Third Edition, November 1986, and successor publications, incorporated herein by reference.]

**(1) PQLs derived from Method Detection Limit (MDL) data from the New Jersey Department of Health and Senior Services Laboratory (DHSS) multiplied by 5;**

**(2) PQLs derived from laboratory performance data that has been evaluated by the Department using the method of Sanders, Lippincott and Eaton (See Sanders, P. et al., "Determining Quantitation Levels for Regulatory Purposes." J. Amer. Water Works Assoc., 1996, March pp. 104-114).**

iii. The Department may approve an alternative PQL. An alternative PQL shall be approved when the evidence (in the context of an applicable regulatory program) establishes that:

(1) Based upon site-specific ground water matrix considerations, a PQL listed in Appendix Table 1 for a constituent is not valid;

(2) An alternative PQL is more appropriate for that constituent with regard to compliance with this [sub]chapter;

(3) – (4) (No change.)

iv. (No change.)

4. Where ground water pollutants affect surface water quality within the meaning of N.J.A.C. [7:9-6.7(g)] **7:9C-1.7(g)**, more sensitive analytical techniques such as bioassays or bioaccumulation assays may be required by the Department.

**[7:9-6.10] 7:9C-1.10 Procedures for reclassification of ground water**

(a) – (f) (No change.)

(g) In order to grant a petition to propose a rule amendment to apply a less stringent classification to a ground water area, the Department must find that the petitioner has established that:

1. (No change.)

2. Based upon an analysis of background water quality of constituent standards in downgradient areas and of ground water flow vectors and gradients, contaminant attenuation, flow barriers and potential for induced movement, the reclassification will not result in significant risk of the following:

i. – ii. (No change.)

iii. Degradation of the quality of source water for public water supply wells in violation of the provisions of in N.J.A.C. [7:9-6.7, 6.8 and 6.9] **7:9C-1.7, 1.8 and 1.9**; or

iv. (No change.)

3. (No change.)

(h)-(i) (No change.)

**[7:9-6.11] 7:9C-1.11 Severability**

If any provision of this [sub]chapter or any application of any such provision is held to be invalid, such invalidity shall not affect any other provision or application, and to this end, the provisions of this [sub]chapter are declared to be severable.

**N.J.A.C. 7:9-6 Appendix recodified to N.J.A.C. 7:9C Appendix**

Note: Original Table 1 Deleted, New Revised Appendix Table 1 Inserted Below

[Table 1

Specific Ground Water Quality Criteria - Class II-A and Practical Quantitation Levels

Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
Acenaphthene	83-32-9	400	10	400
Acenaphthylene	208-96-8	NA	10	NA
Acetone	67-64-1	700	NA	700
Acrolein	107-02-8	NA	50	NA
Acrylamide	79-06-1	0.008	NA	0.008
Acrylonitrile	107-13-1	0.06	50	50
Adipates(Di(ethylhexyl)adipate)	103-23-1	NA	6	NA
Alachlor	15972-60-8	0.43	2	2
Aldicarb sulfone	1646-88-4	2	3	3
Aldrin	309-00-2	0.002	0.04	0.04
Aluminum	7429-90-5	200	200	200
Ammonia		500	200	500
Anthracene	120-12-7	2,000	10	2,000
Antimony	7440-36-0	2	20	20
Arsenic (Total)	7440-38-2	0.02	8	8
Asbestos	1332-21-4	7X10 <sup>6</sup> f/L>10um <sup>a</sup>	10 <sup>2</sup> f/L>10um <sup>a</sup>	7X10 <sup>6</sup> f/L>10um <sup>a</sup>
Atrazine	1912-24-9	3	1	3
Barium	7440-39-3	2,000	200	2,000
Benz(a)anthracene	56-55-3	NA	10	NA
Benzene	71-43-2	0.2	1	1
Benzidine	92-87-5	0.0002	50	50
Benzyl Alcohol	100-51-6	2,000	NA	2,000
Benzo(a)pyrene (BaP)	50-32-8	NA	20	NA
3,4-Benzofluoranthene (Benzo(b)fluoranthene)	205-99-2	NA	10	NA
Benzo(ghi)perylene	191-24-2	NA	20	NA
Benzo(k)fluoranthene	207-08-9	NA	2	NA
Beryllium	440-41-7	0.008	20	20
alpha-BHC (alpha-HCH)	319-84-6	0.006	0.02	0.02
beta-BHC (beta-HCH)	319-85-7	0.2	0.04	0.2
gamma-BHC (gamma-HCH/Lindane)	58-89-9	0.2	0.2	0.2
Bis(2-chloroethyl)ether	111-44-4	0.03	10	10
Bis(2-chloroisopropyl)ether	39638-32-9	300	10	300
Bis(2-ethylhexyl)phthalate	117-81-7	3	30	30
Bromodichloromethane(Dichlorobromomethane)	75-27-4	0.3	1	1
Bromoform	75-25-2	4	0.8	4
Butylbenzyl phthalate	85-68-7	100	20	100
Cadmium	7440-43-9	4	2	4
Carbofuran	1563-66-2	40	7	40
Carbon tetrachloride	56-23-5	0.4	2	2
Chlorobenzene	108-90-7	4	2	4
Chlordane	57-74-9	0.01	0.5	0.5
Chloride	16887-00-6	250,000	2,000	250,000
Chloroform	67-66-3	6	1	6

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Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
4-Chloro-3-methyl (o-chloro-m-cresol)	59-50-7	NA	20	NA
2-Chlorophenol	95-57-8	40	20	40
Chlorpyrifos	12921-88-2	20	0.2	20
Chromium (Total)	7440-47-3	100	10	100
Chrysene	218-01-9	NA	20	NA
Color		10 CU	20 CU	20 CU
Copper	7440-50-8	1,000	1,000	1,000
Cyanide	57-12-5	200	40	200
2,4-D	94-75-7	70	5	70
Dalapon	75-99-0	200	10	200
4,4'-DDD (p,p'-TDE)	72-54-8	0.1	0.04	0.1
4,4'-DDE	72-55-9	0.1	0.04	0.1
4,4'-DDT	50-29-3	0.1	0.06	0.1
Demeton	8065-48-3	0.3	NA	0.3
Dibenz(a,h)anthracene	53-70-3	NA	20	NA
Dibromochloromethane (Chlorodibromomethane)	124-48-1	10	1	10
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	NA	2	NA
Di-n-butyl phthalate	84-74-2	900	20	900
1,2-Dichlorobenzene	95-50-1	600	5	600
1,3-Dichlorobenzene	541-73-1	600	5	600
1,4-Dichlorobenzene	106-46-7	75	5	75
3,3'-Dichlorobenzidine	91-94-1	0.08	60	60
1,1-Dichloroethane	75-34-3	70	NA	70
1,2-Dichloroethane	107-06-2	0.3	2	2
1,1-Dichloroethylene	75-35-4	1	2	2
cis-1,2-Dichloroethylene	156-59-2	10	2	10
trans-1,2-Dichloroethylene	156-60-5	100	2	100
2,4-Dichlorophenol	120-83-2	20	10	20
1,2-Dichloropropane	78-87-5	0.5	1	1
cis-1,3-Dichloropropene	10061-01-5	NA	5	NA
trans-1,3Dichloropropene	10061-02-6	NA	7	NA
1,3-Dichloropropene (cis and trans)	542-75-6	0.2	NA	0.2
Dieldrin	60-57-1	0.002	0.03	0.03
Diethyl phthalate	84-66-2	5,000	10	5,000
2,4-Dimethylphenol	105-67-9	100	20	100
Dimethyl phthalate	131-11-3	NA	10	NA
4,6-Dinitro-o-cresol	534-52-1	NA	60	NA
2,4-Dinitrophenol	51-28-5	10	40	40
2,4-Dinitrotoluene/2,6-Dinitrotoluene mixture	121-14-2	0.05	10	10
2,6-Dinitrotoluene	606-20-2	NA	10	NA
Di-n-octyl phthalate	117-84-0	100	NA	100
Dinoseb	88-85-7	7	2	7
1,2-Diphenylhydrazine	122-66-7	0.04	NA	0.04
Diquat	85-00-7	20	NA	20
Endosulfan	115-29-7	0.4	NA	0.4
alpha-Endosulfan (Endosulfan I)	959-98-8	0.4	0.02	0.4
beta-Endosulfan (EndosulfanII)	3-3213-65-9	0.4	0.04	0.4
Endosulfan sulfate	1031-07-8	0.4	0.03	0.4
Endothall	145-73-3	100	NA	100
Endrin	72-20-8	2	0.04	2
Epichlorohydrin	106-89-8	4	NA	4

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Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
Ethylbenzene	100-41-4	700	5	700
Ethylene dibromide	106-93-4	0.0004	0.05	0.05
Fluoranthene	206-44-0	300	10	300
Fluorene	86-73-7	300	10	300
Fluoride	16984-48-8	2,000	500	2,000
Foaming agents (ABS/LAS)		500	0.5	500
Glyphosate	071-83-6	700	NA	700
Hardness (as CaCO <sub>3</sub> )		250 mg/L	10 mg/L	250 mg/L
Heptachlor	76-44-8	0.008	0.4	0.4
Heptachlor epoxide	024-57-3	0.004	0.2	0.2
Hexachlorobenzene	118-74-1	0.02	10	10
Hexachlorobutadiene	87-68-3	1	1	1
Hexachlorocyclopentadiene	77-47-4	50	10	50
Hexachloroethane	67-72-1	0.7	10	10
Hydrogen sulfide	7783-06-4	20	NA	20
Indeno(1,2,3-cd)pyrene	193-39-5	NA	20	NA
Iron	7439-89-6	300	100	300
Isophorone	78-59-1	100	10	100
Lead (Total)	7439-92-1	5	10	10
Malathion	121-75-5	200	5	200
Manganese	7439-96-5	50	6	50
Mercury (Total)	7439-97-6	2	0.5	2
Methoxychlor	72-43-5	40	10	40
Methyl bromide (bromomethane)	74-83-9	10	2	10
Methyl chloride (chloromethane)	74-87-3	30	2	30
Methyl ethyl ketone	78-93-3	300	NA	300
3-Methyl-4-chlorophenol	59-50-7	NA	20	NA
Methylene chloride	75-09-2	2	2	2
4-Methyl-2-pentanone	108-10-1	400	NA	400
Mirex	2385-85-5	0.01	NA	0.01
Nickel (Soluble salts)	7440-02-0	100	10	100
Nitrate (as N)	14797-55-8	10,000	400	10,000
Nitrate and Nitrite (as N)		10,000	NA	10,000
Nitrite (as N)	14797-65-0	1,000	400	1,000
Nitrobenzene	98-95-3	3	10	10
N-Nitrosodimethylamine	62-75-9	0.0007	20	20
N-Nitrosodiphenylamine	86-30-6	7	20	20
N-Nitrosodi-n-propylamine	621-64-7	0.005	20	20
Odor		3 <sup>b</sup>	NA	3 <sup>b</sup>
Oil & Grease and Petroleum Hydrocarbons (PHC)		None Noticeable	NA	None Noticeable
Oxamyl	23135-22-0	200	20	200
PCBs (Polychlorinated biphenyls)	1336-36-3	0.02	0.5	0.5
Pentachlorophenol	87-86-5	0.3	1	1
pH		6.5-8.5	NA	6.5-8.5
Phenanthrene	85-01-8	NA	10	NA
Phenol	108-95-2	4,000	10	4,000
Picloram	1918-02-1	500	1	500
Pyrene	129-00-0	200	20	200
Selenium (Total)	7782-49-2	50	10	50
Silver	7440-22-4	NA	2	NA
Simazine	122-34-9	1	0.8	1

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<b>Constituent</b>	<b>CASRN</b>	<b>Ground Water Quality Criterion*</b>	<b>Practical Quantitation Level (PQL)*</b>	<b>Higher of PQL and Ground Water Quality Criterion (mg/L)*</b>
Sodium	7440-23-5	50,000	400	50,000
Styrene	100-42-5	100	5	100
Sulfate	14808-79-8	250,000	5,000	250,000
Taste		None Objectionable	NA	None Objectionable
TCDD (2,3,7,8-Tetrachlorodibenzo-p-dioxin)	1746-01-6	0.0000002	0.01	0.01
1,1,1,2-Tetrachloroethane	630-20-6	10	NA	10
1,1,2,2-Tetrachloroethane	79-34-5	2	1	2
Tetrachloroethylene	127-18-4	0.4	1	1
2,3,4,6-Tetrachlorophenol	58-90-2	NA	10	NA
Thallium	7440-28-0	0.5	10	10
Toluene	108-88-3	1,000	5	1,000
Total dissolved solids (TDS)		500,000	10,000	500,000
Toxaphene	8001-35-2	0.03	3	3
2,4,5-TP	93-72-1	50	5	50
1,2,4-Trichlorobenzene	120-82-1	9	1	9
1,1,1-Trichloroethane	71-55-6	30	1	30
1,1,2-Trichloroethane	79-00-5	3	2	3
Trichloroethylene	79-01-6	1	1	1
2,4,5-Trichlorophenol	95-95-4	700	10	700
2,4,6-Trichlorophenol	88-06-2	3	20	20
Vinylchloride	75-01-4	0.08	5	5
Xylenes (Total)	1330-20-7	40	2	40
m & p-Xylenes	NA	NA	2	NA
o-Xylene	NA	NA	1	NA
Zinc	7440-66-6	5,000	30	5,000
Microbiological Criteria <sup>m</sup> , Radionuclides & Turbidity		Standards promulgated in the Safe Drinking Water Act Regulations (N.J.A.C. 7:10-1 et seq.)		

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**Appendix Table 1**

**Specific Ground Water Quality Criteria - Class II-A and Practical Quantitation Levels**

Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
Acenaphthene	83-32-9	400	10	400
Acetone	67-64-1	6,000	10	6,000
Acetophenone	98-86-2	700	10	700
Acrolein	107-02-8	4	5	5
Acrylamide	79-06-1	0.008	0.2	0.2
Acrylonitrile	107-13-1	0.06	2	2
Adipates (Di(2-ethylhexyl)adipate) (DEHA)	103-23-1	30	3	30
Alachlor	15972-60-8	0.4	0.1	0.4
Aldicarb sulfone	1646-88-4	7	0.3	7
Aldrin	309-00-2	0.002	0.04	0.04
Aluminum	7429-90-5	200	30	200
Ammonia (Total)	7664-41-7	3,000	200	3,000
Aniline	62-53-3	6	2	6
Anthracene	120-12-7	2,000	10	2,000
Antimony (Total)	7440-36-0	6	3	6
Arsenic (Total)	7440-38-2	0.02	3	3
Asbestos	1332-21-4	7X10 <sup>6</sup> f/L>10um <sup>a</sup>	10 <sup>6</sup> f/L>10um <sup>a</sup>	7X10 <sup>6</sup> f/L>10um <sup>a</sup>
Atrazine	1912-24-9	3	0.1	3
Barium	7440-39-3	2,000	200	2,000
Benz(a)anthracene	56-55-3	0.05	0.1	0.1
Benzene	71-43-2	0.2	1	1
Benzidine	92-87-5	0.0002	20	20
Benzo(a)pyrene (BaP)	50-32-8	0.005	0.1	0.1
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	205-99-2	0.05	0.2	0.2
Benzo(k)fluoranthene	207-08-9	0.5	0.3	0.5
Benzoic Acid	65-85-0	30,000	50	30,000
Benzyl Alcohol	100-51-6	2,000	20	2,000
Beryllium	7440-41-7	1	1	1
alpha-BHC- (alpha-HCH)	319-84-6	0.006	0.02	0.02
beta-BHC (beta-HCH)	319-85-7	0.02	0.04	0.04
gamma-BHC (gamma-HCH/Lindane)	58-89-9	0.03	0.02	0.03
1,1-Biphenyl	92-52-4	400	10	400
Bis(2-chloroethyl) ether	111-44-4	0.03	7	7
Bis(2-chloroisopropyl) ether	108-60-1	300	10	300
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	2	3	3
Bromodichloromethane (Dichlorobromomethane)	75-27-4	0.6	1	1
Bromoform	75-25-2	4	0.8	4
n-Butanol (n-Butyl alcohol)	71-36-3	700	20	700
tertiary-Butyl alcohol (TBA)	75-65-0	100	2	100
Butylbenzyl phthalate	85-68-7	100	1	100
Cadmium	7440-43-9	4	0.5	4
Camphor	76-22-2	1,000	0.5	1,000
Carbofuran	1563-66-2	40	0.5	40
Carbon Disulfide	75-15-0	700	1	700
Carbon Tetrachloride	56-23-5	0.4	1	1
Chlordane	57-74-9	0.01	0.5	0.5
Chloride	16887-00-6	250,000	2,000	250,000
4-Chloroaniline (p-Chloroaniline)	106-47-8	30	10	30

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Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
Chlorobenzene (Monochlorobenzene)	108-90-7	50	1	50
Chloroform	67-66-3	70	1	70
2-Chloronaphthalene	91-58-7	600	10	600
2-Chlorophenol	95-57-8	40	20	40
Chlorpyrifos	2921-88-2	20	0.1	20
Chromium (Total)	7440-47-3	70	1	70
Chrysene	218-01-9	5	0.2	5
Color		10 CU	5 CU	10 CU
Copper	7440-50-8	1,300	4	1,300
Cumene (Isopropyl benzene)	98-82-8	700	1	700
Cyanide (free cyanide)	57-12-5	100	6	100
2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	70	2	70
Dalapon (2,2-Dichloropropionic acid)	75-99-0	200	0.1	200
4,4'-DDD (p,p'-TDE)	72-54-8	0.1	0.02	0.1
4,4'-DDE	72-55-9	0.1	0.01	0.1
4,4'-DDT	50-29-3	0.1	0.1	0.1
Demeton	8065-48-3	0.3	1	1
Dibenz(a,h)anthracene	53-70-3	0.005	0.3	0.3
Dibromochloromethane (Chlorodibromomethane)	124-48-1	0.4	1	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.02	0.02	0.02
Di-n-butyl phthalate	84-74-2	700	1	700
1,2-Dichlorobenzene (ortho)	95-50-1	600	5	600
1,3-Dichlorobenzene (meta)	541-73-1	600	5	600
1,4-Dichlorobenzene (para)	106-46-7	75	5	75
3,3-Dichlorobenzidine	91-94-1	0.08	30	30
Dichlorodifluoromethane (Freon 12)	75-71-8	1,000	2	1,000
1,1-Dichloroethane (1,1-DCA)	75-34-3	50	1	50
1,2-Dichloroethane	107-06-2	0.3	2	2
1,1-Dichloroethylene (1,1-DCE)	75-35-4	1	1	1
cis-1,2-Dichloroethylene	156-59-2	70	1	70
trans-1,2-Dichloroethylene	156-60-5	100	1	100
2,4-Dichlorophenol (DCP)	120-83-2	20	10	20
1,2-Dichloropropane	78-87-5	0.5	1	1
1,3-Dichloropropene (cis and trans)	542-75-6	0.4	1	1
Dieldrin	60-57-1	0.002	0.03	0.03
Diethyl phthalate	84-66-2	6,000	1	6,000
Diisodecyl phthalate (DIDP)	26761-40-0	100	3	100
Diisopropyl ether (DIPE)	108-20-3	20,000	5	20,000
2,4-Dimethyl phenol	105-67-9	100	20	100
2,4-Dinitrophenol	51-28-5	10	40	40
2,4-Dinitrotoluene/2,6-Dinitrotoluene Mix	25321-14-6	0.05	10	10
Di-n-octyl phthalate	117-84-0	100	10	100
Dinoseb	88-85-7	7	2	7
Diphenylamine	122-39-4	200	20	200
1,2-Diphenylhydrazine	122-66-7	0.04	20	20
Diquat	85-00-7	20	2	20
Endosulfan (alpha and beta)	115-29-7	40	0.1	40
alpha-Endosulfan (Endosulfan I)	959-98-8	40	0.02	40
beta-Endosulfan (Endosulfan II)	33213-65-9	40	0.04	40
Endosulfan Sulfate	1031-07-8	40	0.02	40
Endothall	145-73-3	100	60	100



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Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
Endrin	72-20-8	2	0.03	2
Epichlorohydrin	106-89-8	4	5	5
Ethion	563-12-2	4	0.5	4
Ethyl acetate	141-78-6	6,000	10	6,000
Ethylbenzene	100-41-4	700	2	700
Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.0004	0.03	0.03
Ethylene glycol	107-21-1	300	200	300
Ethylene glycol monomethyl ether	109-86-4	7	20,000	20,000
Ethyl ether	60-29-7	1,000	50	1,000
Fluoranthene	206-44-0	300	10	300
Fluorene	86-73-7	300	1	300
Fluoride	7782-41-4	2,000	500	2,000
Foaming agents (ABS/LAS)		500	0.5	500
Formaldehyde	50-00-0	100	30	100
Glyphosate	1071-83-6	700	30	700
Hardness (as CaCO3)		250,000	10,000	250,000
Heptachlor	76-44-8	0.008	0.05	0.05
Heptachlor epoxide	1024-57-3	0.004	0.2	0.2
Hexachlorobenzene	118-74-1	0.02	0.02	0.02
Hexachlorobutadiene	87-68-3	0.4	1	1
Hexachlorocyclopentadiene	77-47-4	40	0.5	40
Hexachloroethane	67-72-1	2	7	7
Hexane (n-Hexane)	110-54-3	30	5	30
Indeno (1,2,3-cd)pyrene	193-39-5	0.05	0.2	0.2
Iron	7439-89-6	300	20	300
Isophorone	78-59-1	40	10	40
Lead (Total)	7439-92-1	5	5	5
Malathion	121-75-5	100	0.6	100
Manganese	7439-96-5	50	0.4	50
Mercury (Total)	7439-97-6	2	0.05	2
Methanol	67-56-1	4,000	70	4,000
Methoxychlor	72-43-5	40	0.1	40
Methyl acetate	79-20-9	7,000	0.5	7,000
Methyl bromide (Bromomethane)	74-83-9	10	1	10
Methylene chloride	75-09-2	3	1	3
Methyl ethyl ketone (2-Butanone) (MEK)	78-93-3	300	2	300
Methyl Salicylate	119-36-8	4,000	50	4,000
Methyl tertiary butyl ether (MTBE)	1634-04-4	70	1	70
Mirex	2385-85-5	0.1	0.08	0.1
Molybdenum	7439-98-7	40	2	40
Naphthalene	91-20-3	300	2	300
Nickel (Soluble salts)	7440-02-0	100	4	100
Nitrate	14797-55-8	10,000	100	10,000
Nitrite	14797-65-0	1,000	10	1,000
Nitrate and Nitrite		10,000	10	10,000
Nitrobenzene	98-95-3	4	6	6
N-Nitrosodimethylamine	62-75-9	0.0007	0.8	0.8
N-Nitrosodiphenylamine	86-30-6	7	10	10
N-Nitrosodi-n-propylamine (Di-n-propylnitrosamine)	621-64-7	0.005	10	10
Odor		3 <sup>b</sup>	NA	3 <sup>b</sup>
Oil & Grease & Petroleum Hydrocarbons		None Noticeable	NA	None Noticeable

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Constituent	CASRN	Ground Water Quality Criterion*	Practical Quantitation Level (PQL)*	Higher of PQL and Ground Water Quality Criterion (mg/L)*
Oxamyl	23135-22-0	200	1	200
Parathion	56-38-2	4	0.08	4
PBBs (Polybrominated biphenyls)	67774-32-7	0.004	0.001	0.004
PCBs (Polychlorinated biphenyls)	1336-36-3	0.02	0.5	0.5
Pentachlorophenol	87-86-5	0.3	0.1	0.3
pH		6.5-8.5	NA	6.5-8.5
Phenol	108-95-2	2,000	10	2,000
Picloram	1918-02-1	500	1	500
Pyrene	129-00-0	200	0.1	200
Salicylic acid	69-72-7	80	30	80
Selenium (Total)	7782-49-2	40	4	40
Silver	7440-22-4	40	1	40
Simazine	122-34-9	0.3	0.8	0.8
Sodium	7440-23-5	50,000	400	50,000
Styrene	100-42-5	100	2	100
Sulfate	14808-79-8	250,000	5,000	250,000
Taste		None Objectionable	NA	None Objectionable
TDS (Total Dissolved Solids)		500,000	10,000	500,000
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746-01-6	0.0000002	0.00001	0.00001
1,1,1,2-Tetrachloroethane	630-20-6	1	1	1
1,1,2,2-Tetrachloroethane	79-34-5	1	1	1
Tetrachloroethylene (PCE)	127-18-4	0.4	1	1
2,3,4,6-Tetrachlorophenol	58-90-2	200	3	200
Tetrahydrofuran	109-99-9	10	10	10
Thallium	7440-28-0	0.5	2	2
Toluene	108-88-3	1,000	1	1,000
Toxaphene	8001-35-2	0.03	2	2
2,4,5-TP (2-(2,4,5-Trichlorophenoxy)propionic acid)	93-72-1	60	0.6	60
1,2,4-Trichlorobenzene	120-82-1	9	1	9
1,1,1-Trichloroethane (TCA)	71-55-6	30	1	30
1,1,2-Trichloroethane	79-00-5	3	2	3
Trichloroethene (TCE)	79-01-6	1	1	1
Trichlorofluoromethane (Freon 11)	75-69-4	2,000	1	2,000
2,4,5-Trichlorophenol	95-95-4	700	10	700
2,4,6-Trichlorophenol	88-06-2	1	20	20
1,2,3-Trichloropropane	96-18-4	0.005	0.03	0.03
Vanadium Pentoxide	1314-62-1	60	1	60
Vinyl Acetate	108-05-4	7,000	5	7,000
Vinyl Chloride	75-01-4	0.08	1	1
Xylenes (Total)	1330-20-7	1,000	2	1,000
Zinc	7440-66-6	2,000	10	2,000
Microbiological Criteria <sup>m</sup> , Radionuclides & Turbidity		Standards promulgated in the Safe Drinking Water Act Regulations (N.J.A.C. 7:10-1 et seq.)		

Explanation of Terms:

\* = Ground water quality criteria and PQLs are expressed as **micrograms per liter** (ug/L) unless otherwise noted. Table 1 criteria are all maximum values unless clearly indicated as a range for which the minimum value is to the left and the maximum value is to the right.

PQL = Practical quantitation level as defined in N.J.A.C. [7:9-6.4] **7:9C-1.4**

CASRN = Chemical Abstracts System Registration Number

- NA = not available for this constituent.
- a = Asbestos criterion is measured in terms of fibers/L longer than 10 micrometers (f/L > 10 um)
- ug = micrograms, L = liter, f = fibers, CU= Standard Cobalt Units
- b = Odor Threshold Number, mg = milligrams, H = Hardness
- m = Pursuant to prevailing Safe Drinking Water Act Regulations any positive result for fecal coliform is in violation of the MCL and is therefore an exceedance of the ground water quality criteria.
- (Total) means the concentration of metal in an unfiltered sample following treatment with hot dilute mineral acid (as defined in "Methods for Chemical Analysis of Water & Wastes", USEPA-600/4-79-020, March 1979) or other digestion defined by the analytical method. However samples that contain less than 1 nephelometric turbidity unit (NTU) and are properly preserved, may be directly analyzed without digestion.

**Appendix Table 2**

Interim Generic Ground Water Quality Criteria

Interim Generic Criteria - Synthetic Organic Chemicals (SOCs)[\*]

<u>Constituent</u>	<u>[Water Quality] Criteria</u>
<b>SOCs [with evidence of carcinogenicity] <u>defined</u></b>	
<b><u>as carcinogens in N.J.A.C. 7:9C-1.4</u></b> lacking specific or interim specific criteria	5 ug/l each 25 ug/l total
<b>SOCs [lacking evidence of carcinogenicity]</b>	
<b><u>defined as non-carcinogens in N.J.A.C. 7:9C-1.4</u></b> lacking specific or interim specific criteria	100 ug/l each 500 ug/l total

[\* SOC's are identified as having "evidence of carcinogenicity" based upon available scientific evidence. Chemicals are classified as carcinogens or non-carcinogens for the purposes of risk assessment according to the weight of evidence utilized by the USEPA in the National Primary Drinking Water Regulations (50 FR 46880-46901 (1985)).]

**Figures 1-5**

(No change.)

Based on consultation with staff, I hereby certify that the above statements, including the Federal Standards Analysis addressing the requirements of Executive Order No. 27 (1994), permits the public to

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understand accurately and plainly the purposes and expected consequences of this proposed readoption and recodification with amendments. I hereby authorize this proposal.

DATE: \_\_\_\_\_

\_\_\_\_\_  
Bradley M. Campbell, Commissioner  
Department of Environmental Protection