New Jersey Department of Environmental Protection

Standards for Drinking Water, Ground Water, Surface Water, Soil, and Indoor Air

pH| CAS#: N/A

Drinking Water Quality Standards

Standard: 6.5-8.5
Type: Secondary
Optimum Range

Ground Water Quality Standards

Standard: 6.5-8.5
Type: Specific
GW-Quality Criterion: 6.5-8.5
PQL: N/A

Surface Water Quality Standards

Freshwater

See N.J.A.C. 7:9B-1.14(d)

Saline Water

See N.J.A.C. 7:9B-1.14(d)

Soil Remediation Standards
(mg/kg)

Ingestion-Dermal Exposure Pathway
Residential:
Nonresidential:

Inhalation Exposure Pathway
Residential:
Nonresidential:

Migration to Ground Water Exposure Pathway
Soil Remediation Standard:
Soil Leachate Remediation Standard:

*Indoor Air Remediation Standards***
(µg /m³)

Vapor Intrusion Exposure Pathway
Residential:
Nonresidential:

Ground Water Standard Footnotes:
a = Asbestos criterion is measured in terms of fibers/liter longer than 10 micrometers (f/L > 10 μm)

Surface Water Standard Footnotes:
(a) Criteria as listed at NJA 7:9B-1.14 (f)3 above as formula
(b) Criteria as listed at NJA 7:9B-1.14 (f)4 above as formula
(d) Criterion is expressed as a function of the Water Effect Ratio (WER). For criterion in the table, WER equates to the default value of 1.0.
(fc) Criteria expressed as free cyanide (as CN)/L
(h) Human health noncarcinogen
(hc) Human health carcinogen
(ol) Organoleptic effect-based criterion with no frequency of exceedance at or above the MA7CD10 flow
(s) Dissolved criterion
(T) Total recoverable criterion
FW1 means those fresh waters, as designated in N.J.A.C. 7:9B-1.15(j), that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any manmade wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, other characteristic of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s).
FW2 means the general surface water classification applied to those fresh waters that are not designated as FW1 or Pinelands Waters.
FW2-TP means FW2 trout production.
FW2-TM means FW2 trout maintenance.
FW2-NT means FW2 non- trout.
PL means Pinelands Waters
SE1 means saline estuarine waters whose designated uses are listed in N.J.A.C. 7:9B-1.12(d).
SE2 means saline estuarine waters whose designated uses are listed in N.J.A.C. 7:9B-1.12(e).
SE3 means saline estuarine waters whose designated uses are listed in N.J.A.C. 7:9B-1.12(f).
SC means the general surface water classification applied to saline coastal waters

Soil Remediation Standards Footnotes:
(1) Not applicable because toxicological information that meets the Site Remediation and Waste Management Program's policy is not available
(2) Not applicable because the calculated health-based criterion exceeds one million mg/kg
(3) Not applicable because the calculated health-based criterion exceeds the soil saturation limit
(4) Not applicable because the calculated health-based soil criterion exceeds the soil saturation limit
(5) Not applicable because ground water remediation standard is a secondary standard
(6) Not applicable because a ground water remediation standard does not exist
(7) Standard is based on natural background
(8) Standard set at reporting limit
(9) Exceeds soil saturation limit; however, health-based criterion based on particulate portion of the equation
(10) Standard based on the Integrated Exposure Uptake Biokinetic (IEUBK) model for lead in children
(11) Standard based on the Adult Lead Model (ALM)
(12) This standard is used for comparison to site soil data that have been converted to sample-specific TCDD-TEQ values through application of the Toxicity Equivalence Factor Methodology (USEPA 2010) and using the WHO 2005 Mammalian Toxic Equivalency Factors (TEFs)
(13) This standard is used for comparison to site soil leachate data that have been converted to sample-specific TCDD-TEQ values through application of the Toxicity Equivalence Factor Methodology (USEPA 2010) and using the WHO 2005 Mammalian Toxic Equivalency Factors (TEFs)
NA: Standard Not Applicable
NR: Chemical Not Regulated

Indoor Air Remediation Standards Footnotes:
(i) Not applicable because toxicological information that meets the Site Remediation and Waste Management's policy is not available
(ii) Standard set at reporting limit
(iii) Value is for elemental mercury
NA: Standard Not Applicable
NR: Chemical Not Regulated
**Indoor air remediation standards are to be used when evaluating the vapor intrusion exposure pathway

NJDEP - Toxicity Factors for pH

These are the human health toxicity data that were used by the Department to derive its health based criteria.

pH

Drinking water

Carcinogen Group:

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis: FEDERAL

Ground water

Carcinogen Group:

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis:

Surface water

Carcinogen Group

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis:

Soil

Oral		Inhalation	
Carcinogen Group		**Carcinogen Group :**	
Slope Factor:	$(mg/kg/day)^{-1}$	**Unit Risk Factor**	$(ug/m^3)^1$
Reference Dose:	(mg/kg/day)	**Reference Concentration:**	$(ug/m)^3$
Basis:		**Basis:**	

** Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are theReference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.*

See additional footnote explanations on last page

grossalpha

Drinking water

Carcinogen Group:

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis: FEDERAL

Ground water

Carcinogen Group:

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis:

Surface water

Carcinogen Group

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis:

Soil

Oral	**Inhalation**
Carcinogen Group	**Carcinogen Group :**
Slope Factor: $(mg/kg/day)^{-1}$	**Unit Risk Factor** $(ug/m^3)^1$
Reference Dose: (mg/kg/day)	**Reference Concentration:** $(ug/m)^3$
Basis:	**Basis:**

** Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are theReference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.*

See additional footnote explanations on last page

Beta/Photon emit

Drinking water

Carcinogen Group:

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis: FEDERAL

Ground water

Carcinogen Group:

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis:

Surface water

Carcinogen Group

Oral Slope Factor: $(mg/kg/day)^{-1}$

Oral Reference Dose: (mg/kg/day)

Basis:

Soil

Oral	**Inhalation**
Carcinogen Group	**Carcinogen Group :**
Slope Factor: $(mg/kg/day)^{-1}$	**Unit Risk Factor** $(ug/m^3)^1$
Reference Dose: (mg/kg/day)	**Reference Concentration:** $(ug/m)^3$
Basis:	**Basis:**

** Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are theReference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.*

See additional footnote explanations on last page

Drinking Water - Notes

1. The Reference Doses for the Group C chemicals incorporate an additional uncertainty factor of 10 for possible carcinogenicity.
2. Toxicity factors were developed by the NJDWQI under the A-280 process for the following chemicals, but MCLs were not adopted for unrelated reasons, such as lack of a standardized analytical method for drinking water: Ethylene glycol, formaldehyde, hexane, methyl ethyl ketone, and 2,4,6-trichlorophenol.
3. The New Jersey MCL for 1,4-Dichlorobenzene was adopted from USEPA, but New Jersey did not necessarily agree with the USEPA RfD, so it is not included on this table

Ground Water - Footnotes

a = from USEPA, Health Effects Assessment Summary Tables, FY 1997 Update, OSWER 9200.6.303 (97-1), EPA-540-R-97-036, PB97-921199, July 1997.
b = existing drinking water Maximum Contaminant Level Goal (MCLG) (CFR Part 141 - National Primary Drinking Water Regulations). For beryllium see Section IV-d of the Basis and Background.
c = developed by the Department for calculating ISCs. For details on developing specific RfD, slope factor, or carcinogen class equivalent to USEPA categorization, see support document available by request to the Department.
d = Slope factor and carcinogen group of arsenic are those listed in IRIS under arsenic (inorganic); RfDs of chromium, mercury, and nickel are those listed in IRIS under chromium (VI), mercuric chloride, and nickel (soluble salts), respectively. The RfD for thallium was developed by the Department based on the RfD of thallium(I) sulfate in IRIS.
e = derived by multiplying the IRIS slope factor of B(a)P of 7.3 (mg/kg-day)-1 with the “estimated order of potential potency” for the individual Group B2 PAHs recommended in USEPA “Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons”, Office of Research and Development, EPA/600/R-93/089. The relative potencies based on that of benzo(a)pyrene as 1.0 are as follows: benz(a)anthracene, 0.1; benzo(b)fluoranthene, 0.1; benzo((k)fluoranthene, 0.01; chrysene, 0.001; dibenz(a, h)anthracene, 1.0; indeno(1,2,3-c,d)pyrene, 0.1.
f = Group D categorization of mercury based on USEPA National Primary Drinking Water Regulations; Final Rule. 56 FR 3537, Jan 30, 1991. For detailed discussion on Group D categorization of mercury, see Section IV-o in this Basis and Background.
** = The carcinogen group assigned to acrolein in IRIS is the descriptor, “data are inadequate for an assessment of human carcinogenic potential” which is equivalent to Group D.7

Surface Water - Footnotes

^ The carcinogen group assigned to acrolein in IRIS is the descriptor, “data are inadequate for an assessment of human carcinogenic potential” which is equivalent to Group D.
+ See text on cadmium. For RfD for cadmium, “(w)” stands for water. “(f)”stands for food.
# The BCF for MTBE was derived from its octanol-water partition coefficient of 1.05 (New Jersey Drinking Water Quality Institute. Maximum Contaminant Level Recommendations for Hazardous Contaminants in Drinking Water. September 26, 1994. Appendix A, Health-Based Maximum Contaminant Level Support Documents and Addenda. p. A-32) based on the equations given in the USEPA's Draft Water Quality Criteria Methodology: Human Health. EPA 822-Z-98-001. August 1998.
* The criterion for lead remains unchanged. The criteria for nickel are based on data from 2002 Calculation Matrix updated by the current fish consumption rate of 17.5 g/day.

Soil - Footnotes

1. Carcinogen Classification - All classifications are based on IRIS unless stated otherwise
1999 Cancer Draft Guidelines:
- KNOWN - Known carcinogen
- CANTDET - Can not determine carcinogenic classification
- LIK - Likely to be a human carcinogen
- NLIK - Not likely to be a carcinogen
- INAD - Inadequate data
- ORL - Oral exposure route
- INHL - Inhalation exposure route

1986 Cancer Guidelines:
- Group A - Human carcinogen
- Group B - Probable human carcinogen
- Group B2 - Sufficient evidence from animal studies and inadequate or no data from epidemiologic studies
- Group C - Possible human carcinogen
- Group D - Not classifiable as to human carcinogenicity
- Group E - Evidence on non-carcinogenicity for humans

2. References:
- IRIS - Integrated Risk Information System
- HEAST- Health Effects Assessment Summary Tables
- NCEA - National Center for Environmental Assessment/EPA Provisional Value
- DEP- NJ Department of Environmental Protection
- NR02- EPA National Recommended Water Quality Criteria 2002
- ^ - DEP C Carcinogen Policy: RfD includes an additional safety factor of 10
- A-280 - Chemicals regulated under A-280 Amendments to NJ Safe Drinking water Act (P. L. 1983, c.443)
- Blanks indicate that no information is available
- Mercury* - standard is based on RfD for mercuric chloride (CAS# 007847-94-7)

** Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are theReference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.*

See additional footnote explanations on last page