

CHAPTER 26D
REMEDIATION STANDARDS
(adopted June 2, 2008 (40 N.J.R. 3187(a)).)

SUBCHAPTER 1. GENERAL INFORMATION

7:26D-1.1 Purpose

(a) This chapter implements the provisions of the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1.1 et seq., and other statutes, by establishing:

1. Ground water remediation standards;
2. Surface water remediation standards;
3. Residential and ~~nonresidential~~non-residential soil remediation standards for the ingestion-dermal exposure pathway;
4. Residential and ~~nonresidential~~non-residential soil remediation standards for the inhalation exposure pathway;
5. Migration to ground water remediation standards; and
6. Residential and non-residential indoor air remediation standards for the vapor intrusion exposure pathway.

(b) This chapter supplements the requirements in the Technical Requirements for Site Remediation rules, N.J.A.C. 7:26E.

7:26D-1.2 Scope

(a) Unless otherwise provided by rule or statute, this chapter shall constitute the rules of the Department concerning standards for the remediation of ground water, surface water, soil, and indoor air.

(b) Remediating ground water, surface water, soil, and indoor air to any applicable standard set forth in this chapter shall not relieve any person from:

1. Complying with more stringent requirements or provisions imposed under any other Federal, State, or local applicable statutes or regulations; and
2. Obtaining any and all permits required by Federal, State, or local statutes or regulations.

(c) No provision of this chapter shall be construed to limit the Department's authority to require additional remediation based upon site-specific conditions in order to protect human health, safety and the environment.

(d) Nothing in this chapter shall be construed to limit the authority of the Department to establish discharge limits for pollutants, or to prescribe penalties for violations of those limits pursuant to any statutory authority, or to require the complete removal of any illegally discharged hazardous substances, hazardous waste, or pollutants pursuant to law.

(e) The person responsible for conducting the remediation shall not be required to remediate to a level or concentration that is lower than the regional natural background level.

7:26D-1.3 Construction and severability

(a) This chapter shall be liberally construed to permit the Department to effectuate the purposes of the statutes listed in N.J.A.C. 7:26D-1.4(a).

(b) If any subchapter, section, subsection, provision, clause, or portion of this chapter, or the application thereof to any person, is adjudged unconstitutional or invalid by a court of competent jurisdiction, such judgment shall be confined in its operation to the subchapter, section, subsection, provision, clause, portion, or application directly involved in the controversy in which such judgment shall have been rendered and it shall not affect or impair the remainder of this chapter or the application thereof.

7:26D-1.4 Applicability

(a) This chapter establishes the remediation standards for ground water, surface water, soil, and indoor air for any contaminated site in New Jersey including, without limitation, those sites subject to:

1. The Industrial Site Recovery Act (ISRA), N.J.S.A. 13:1K-6 et seq.;
2. The New Jersey Underground Storage of Hazardous Substances Act (UST), N.J.S.A. 58:10A-21 et seq.;
3. The Spill Compensation and Control Act, N.J.S.A. 58:10-23.11a et seq.;
4. The Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.;
5. The Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.;
6. The Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq.;
7. The Comprehensive Regulated Medical Waste Management Act, N.J.S.A. 13:1E-48.1 et seq.;
8. The Major Hazardous Waste Facilities Siting Act, N.J.S.A. 13:1E-49 et seq.;

9. The Sanitary Landfill Facility Closure and Contingency Fund Act, N.J.S.A. 13:1E-100 et seq.;
10. The Regional Low-Level Radioactive Waste Disposal Facility Siting Act, N.J.S.A. 13:1E-177 et seq.; and
11. The Site Remediation Reform Act (SRRA), N.J.S.A. 58:10C-1 et seq.

(b) The requirements of this chapter shall be subject to:

1. The Technical Requirements for Site Remediation, N.J.A.C. 7:26E;
2. The Administrative Requirements for the Remediation of Contaminated Sites (ARRCS), N.J.A.C. 7:26C; and
3. Any available and appropriate technical guidance concerning site remediation as issued by the Department, pursuant to ARRCS at N.J.A.C. 7:26C-1.2(a)3. The Department's technical guidance can be found on the Department's website.

(c) The person responsible for conducting the remediation of a site shall comply with the remediation standards set forth in this chapter, except as provided in 1 and 2 below. The provisions in 1 and 2 below apply only to areas of concern that are identified in the remedial action workplan or remedial action report.

1. A standard or criterion developed by the Department prior to June 2, 2008 may be used to remediate a site under the following conditions:
 - i. A remedial action workplan was submitted to the Department prior to December 2, 2008;
 - ii. The remedial action workplan was approved by the Department or is certified by a licensed site remediation professional;
 - iii. A standard or criterion developed by the Department prior to June 2, 2008 for any contaminant does not differ by an order of magnitude or more when compared to the remediation standards established by this chapter; and
 - iv. The ~~remediation~~remedial action has to be completed by the mandatory timeframe pursuant to ARRCS at N.J.A.C. 7:26C-3.
2. Any standard adopted by the Department or developed pursuant to N.J.S.A. 58:10B-12 that was in effect between June 2, 2008 and {the effective date of this chapter} may be used to remediate a site under the following conditions:
 - i. A remedial action workplan or remedial action report was submitted to the Department between December 2, 2008 and {six months from the effective date of this chapter};

- ii. The remedial action workplan or remedial action report was approved by the Department or is certified by a licensed site remediation professional;
- iii. An adopted standard that was in effect between December 2, 2008 and {the effective date of this chapter} for any contaminant does not differ by an order of magnitude or more when compared to the remediation standards established by this chapter; and
- iv. The ~~remediation~~remedial action has to be completed by the mandatory timeframe pursuant to ARRCs at N.J.A.C. 7:26C-3.

(d) Notwithstanding any other provision of this chapter, all applicable remediation standards and remedial actions that involve real property located in the Pinelands area shall be consistent with the provisions of the Pinelands Protection Act, N.J.S.A. 13:18A-1 et seq., and any rules promulgated pursuant thereto, and with Section 502 of the National Parks and Recreation Act of 1978, 16 U.S.C. §4711.

7:26D-1.5 Definitions

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise:

"Alternative remediation standard" or "ARS" means residential and non-residential soil remediation standards for the ingestion-dermal exposure pathway, residential and non-residential soil remediation standards for the inhalation exposure pathway, migration to ground water soil remediation standards, and residential and non-residential indoor air remediation standards for the vapor intrusion exposure pathway that are established using site-specific factors following the procedures set forth in N.J.A.C. 7:26D-7 Appendices 6 through 9, pursuant to this chapter.

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

"Contaminated site" means a contaminated site as defined pursuant to the Technical Requirements for Site Remediation at N.J.A.C. 7:26E-1.8.

"Contamination" or "contaminant" means contamination or a contaminant as defined pursuant to the Technical Requirements for Site Remediation at N.J.A.C. 7:26E-1.8.

"Criterion" or "criteria" means, for the ingestion-dermal, inhalation and vapor intrusion exposure pathways, the health-based value(s) that are derived from the equations in this chapter Appendices 2, 3, and 5. For the migration to ground water exposure pathway, "criterion" or "criteria" means the soil value(s) that are derived from the equations in this chapter Appendix 4, equations 1 through 4.

"Department" means the New Jersey Department of Environmental Protection.

"Discharge" means a discharge as defined pursuant to the Technical Requirements for Site Remediation at N.J.A.C. 7:26E-1.8.

"Exposure pathway" means the way that humans can come into contact with contamination including, but not limited to, the ingestion-dermal exposure pathway, the inhalation exposure pathway, the migration to ground water exposure pathway, and the vapor intrusion exposure pathway.

"Extractable petroleum hydrocarbons" or "EPH" means extractable aliphatic and aromatic petroleum hydrocarbons determined using the Department's "Extractable Petroleum Hydrocarbons Methodology," as amended or supplemented, found at

www.nj.gov/dep/srp/guidance/srra/eph_method.pdf; www.nj.gov/dep/srp/guidance/srra/eph_method.pdf.

EPH includes, but is not limited to, No. 2 Fuel Oil, diesel fuel, and heavier petroleum products, but excludes the lighter petroleum products including gasoline and mineral spirits.

"Ground water" means ground water as defined pursuant to the Ground Water Quality Standards at N.J.A.C. 7:9C-1.6, which includes Class I, Class II and Class III ground water.

"Ground water quality criteria" means any human health-based ground water quality criteria as defined pursuant to the Ground Water Quality Standards at N.J.A.C. 7:9C-1.6.

"Indoor air remediation standard" means an indoor air remediation standard for the vapor intrusion exposure pathway established or developed pursuant to this chapter that is designed to protect human health at residential and non-residential properties.

"Ingestion-dermal exposure pathway" is an exposure pathway involving human contact with contaminants through incidental ingestion of soil and dermal contact with soil, during which absorption of contaminants from the soil through the skin may occur.

"Ingestion-dermal soil remediation standard" means a ~~soil~~ remediation standard for the ingestion-dermal exposure pathway established or developed pursuant to this chapter that is designed to protect human health at residential and non-residential properties.

"Inhalation exposure pathway" is an exposure pathway involving human contact with contaminants through the inhalation of particulates and/or vapors emanating from contaminated soil. This pathway is distinct from the vapor intrusion exposure pathway.

"Inhalation soil remediation standard" means a ~~soil~~ remediation standard for the inhalation exposure pathway established or developed pursuant to this chapter that is designed to protect human health at residential and non-residential properties.

"Migration to ground water exposure pathway" is an exposure pathway involving the migration of contaminants in unsaturated soil to ground water and subsequent human exposure through the ingestion of ground water.

"Migration to ground water remediation standard" means a remediation standard established or developed in accordance with this chapter and pursuant to N.J.S.A. 58:10B-12a that is designed to limit the

amount of contaminant that migrates from the unsaturated soil zone to ground water such that the resulting ground water concentration will not exceed the applicable ground water remediation standard.

“Non-residential” means properties used for commercial or industrial purposes.

"Person responsible for conducting the remediation" means the person responsible for conducting the remediation as defined pursuant to ARRCS at N.J.A.C. 7:26C-1.3.

"Pollutant" means any substance defined as such pursuant to the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.

"Regional natural background levels" means the concentration of a contaminant consistently present in the environment of the region of the site and which has not been influenced by localized human activities, as defined pursuant to the Brownfield and Contaminated Sites Remediation Act at N.J.S.A. 58:10B-12g(4).

"Remediation" or "remediate" means remediation or remediate as defined pursuant to the Technical Requirements for Site Remediation at N.J.A.C. 7:26E-1.8.

"Remediation standards" means the combination of numeric standards that establish a level or concentration, and narrative standards, to which contaminants must be treated, removed, or otherwise cleaned for soil, ground water, surface water, or indoor air, as established by the Department pursuant to the Brownfield and Contaminated Sites Remediation Act at N.J.S.A. 58:10B-12 and this chapter.

“Reporting limit” or “RL” means a reporting limit or RL as defined pursuant to the Technical Requirements for Site Remediation at N.J.A.C. 7:26E-1.8.

“Residential” means properties used for residences; private and public schools and childcare facilities as defined by as defined in C. 18A:1-1; charter schools established pursuant to P.L. 1995, c. 426 (C. 18A:36A-1 et seq.); and child care centers licensed pursuant to P.L. 1983, c. 492 (C. 30:5B-1 et seq.).

"Surface water" means "surface water" as defined pursuant to the Surface Water Quality Standards, N.J.A.C. 7:9B.

"Surface Water Quality Standards" means the rules in N.J.A.C. 7:9B, which set forth designated uses, use classifications, and water quality criteria for the State's waters based upon such uses, and the Department's policies concerning these uses, classifications and criteria.

"USEPA" means the United States Environmental Protection Agency.

“Vapor intrusion exposure pathway” ~~means the way that humans can come in~~ is an exposure pathway involving human contact with contaminants through the inhalation of contaminated indoor air that is due to the migration of volatile contaminants from the subsurface into buildings. This pathway is distinct from the inhalation exposure pathway.

SUBCHAPTER 2. GROUND WATER REMEDIATION STANDARDS

7:26D-2.1 Purpose

This subchapter establishes the remediation standards for ground water.

7:26D-2.2 Ground water remediation standards

(a) The remediation standards to which ground water shall be remediated are:

1. For Class II ground water, the Ground Water Quality Standards developed pursuant to N.J.A.C. 7:9C-1.7(c) and (d);
2. For Class I-A and Class I-PL, Ground Water Quality Standards developed pursuant to N.J.A.C. 7:9C-1.7(a) and (b);
3. For Class III-A and Class III-B, Ground Water Quality Standards developed pursuant to N.J.A.C. 7:9C-1.7(e) and (f); and
4. For all ground water, regardless of classification, each of the following narrative ground water remediation standards, as applicable:
 - i. The general ground water quality policies in N.J.A.C. 7:9C-1.2;
 - ii. The narrative ground water quality criteria in N.J.A.C. 7:9C-1.7;
 - iii. The ground water quality antidegradation policy in N.J.A.C. 7:9C-1.8;
 - iv. The remediation requirements in N.J.A.C. 7:26E-1 through 5 in order to both:
 - (1) Address the adverse impact of the contamination on the ground water itself; and
 - (2) Limit additional risks posed by the contamination to the human health and safety and to the environment;
 - v. The free and residual product removal, treatment, or containment requirements of N.J.A.C. 7:26E-5.1(e);
 - vi. The contaminants have not migrated to the ground surface, structures, or air in concentrations in excess of remediation standards; and
 - vii. The following factors, as applicable on a site-specific basis, for selecting an appropriate ground water remedial action:
 - (1) The location of the contaminated site relative to ground water use;

- (2) The potential human and environmental exposure to the ground water contamination under current and future conditions;
- (3) The current and future ground water use at the site and in the area surrounding the site over the 25 years after the selection of the ground water remedy;
- (4) The ambient ground water quality at the site and in the area surrounding the site resulting from both human activities and natural conditions; and
- (5) The physical and chemical characteristics of the contaminants of concern.

SUBCHAPTER 3. SURFACE WATER REMEDIATION STANDARDS

7:26D-3.1 Purpose

This subchapter establishes the remediation standards for surface water.

7:26D-3.2 Surface water remediation standards

(a) The remediation standards for surface water are:

1. The numeric New Jersey Surface Water Quality Standards, N.J.A.C. 7:9B-1.14(c) through (h); and
2. The following narrative surface water remediation standards:
 - i. The general surface water quality policies in N.J.A.C. 7:9B-1.5;
 - ii. The surface water quality standards in N.J.A.C. 7:9B-1.14(a) and (b);
 - iii. The remediation requirements in N.J.A.C. 7:26E-1 through 5 in order to both:
 - (1) Address the adverse impact of the contamination on the surface water itself; and
 - (2) Limit additional risks posed by the contamination to the public health and safety and to the environment;
 - iv. The free and residual product removal, treatment, or containment requirements of N.J.A.C. 7:26E-5.1(e); and
 - v. The following narrative criteria, as applicable on a site-specific basis, for selecting an appropriate surface water remedial action:
 - (1) The location of the contaminated site relative to surface water use;

- (2) The potential human and environmental exposure to the surface water contamination under current or future conditions;
- (3) The current and future surface water use at the site and in the area surrounding the site;
- (4) The ambient surface water quality at the site and in the area surrounding the site resulting from both human activities and natural conditions; and
- (5) The physical and chemical characteristics of the contaminants of concern.

SUBCHAPTER 4. SOIL REMEDIATION STANDARDS

7:26D-4.1 Purpose

(a) This subchapter establishes soil remediation standards, including for:

1. Residential and non-residential ingestion-dermal soil remediation standards; exposure pathways;
2. Residential and non-residential inhalation soil remediation standard; exposure pathways; and
3. Migration to ground water remediation standard; exposure pathway.

(b) These soil remediation standards apply as defaults, unless superseded by Subchapter 7, Updating Remediation Standards, or Subchapter 8, Alternative Remediation Standards.

7:26D-4.2 Residential and non-residential ingestion-dermal soil remediation standards

(a) The Department developed the ingestion-dermal human health-based criteria in this chapter Appendix 1, Tables 1 and 2, (Remediation Standards Tables), Tables 1 (Residential Ingestion-Dermal Soil Remediation Standards) and 2 (Non-residential Ingestion-Dermal Soil Remediation Standards), incorporated herein by reference, as follows:

1. The residential and non-residential human health-based criteria for the ingestion-dermal exposure pathway, based on the equations, data sources, and conventions provided in this chapter Appendix 2, (Equations for the Development of Ingestion-Dermal Soil Remediation Standards for Residential and Non-residential Exposure), incorporated herein by reference.

(b) The residential ingestion-dermal soil remediation standard for each contaminant listed in this chapter Appendix 1, Table 1 is:

1. The lesser value of the carcinogenic or non-carcinogenic ingestion-dermal human health-based criterion; or

2. The RL, if the RL is greater than the value of the health-based criterion in (b)1 above.

(c) The non-residential ingestion-dermal soil remediation standard for each contaminant listed in this chapter Appendix 1, Table 2 is:

1. The lesser value of the carcinogenic or non-carcinogenic ingestion-dermal human health-based criterion; or

2. The RL, if the RL is greater than the value of the health-based criterion in (c)1 above.

7:26D-4.3 Residential and non-residential inhalation soil remediation standards

(a) The Department developed the inhalation human health-based criteria in this chapter Appendix 1, ~~Tables 3 and 4, (Remediation Standards Tables), Tables 3 (Residential Inhalation Soil Remediation Standards) and 4 (Non-residential Inhalation Soil Remediation Standards),~~ incorporated herein by reference, as follows:

1. The residential and non-residential human health-based criteria for the inhalation exposure pathway, based on the equations, data sources, and conventions provided in this chapter Appendix 3, ~~(Equations for the Development of Inhalation Remediation Standards Residential and Non-residential Use),~~ incorporated herein by reference.

(b) The residential inhalation soil remediation standard for each contaminant listed in this chapter Appendix 1, Table 3 is:

1. The lesser value of the carcinogenic or non-carcinogenic inhalation human health-based criterion; or

2. The RL, if the RL is greater than the value of the health-based criterion in (b)1 above.

(c) The non-residential inhalation soil remediation standard for each contaminant listed in this chapter Appendix 1, Table 4 is:

1. The lesser value of the carcinogenic or non-carcinogenic inhalation human health-based criterion; or

2. The RL, if the RL is greater than the value of the health-based criterion in (c)1 above.

7:26D-4.4 Migration to ground water ~~soil~~ remediation standards

(a) The Department developed the ~~soil-migration to ground water~~ soil remediation standards in this chapter Appendix 1, (Remediation Standards Tables), Table 5; (Migration to Ground Water Soil Remediation Standards), incorporated herein by reference, as follows:

1. The ~~soil-migration to ground water~~ criteria for the migration to ground water exposure pathway, based on the equations, data sources, and conventions provided in this chapter Appendix 4, (Equations for the Development of Migration to Ground Water Remediation Standards) Equations 1 through 4, incorporated herein by reference.
2. The ~~soil-migration to ground water~~ soil remediation standard for each contaminant listed in this chapter Appendix 1, Table 5 is the higher/greater value of either the migration to ground water soil criterion or the RL.

(b) The Department developed the ~~soil leachate-migration to ground water~~ soil leachate standards in this chapter Appendix 1, Table 6 (Migration to Ground Water Soil Leachate Remediation Standards), based on the equations, data sources, and conventions provided in this chapter Appendix 4 Equation 5, incorporated herein by reference.

~~(c) The Department developed narrative standards that may be applied, after full delineation of the contamination to the soil migration to ground water remediation standards has been completed, for the following:-~~

~~1. *NOTE: Immobile Chemicals, when:-~~

- ~~a. The contaminant exhibits a very low mobility in soil, as defined by a soil organic carbon water partition coefficient (K_{oc}) or a soil water partition coefficient (K_d);~~
- ~~b. Factors that may increase a contaminant's mobility are not present; and~~
- ~~c. A clean zone of two feet or greater exists between the contamination and the water table.~~

~~2. Metals and semiSemi-volatile contamination, when:-~~

- ~~a. The highest concentrations of remaining contamination are being relocated as ARSs because one must demonstrate that these are located at the water table; and~~
- ~~b. No ground water impact above the Ground Water Remediation Standards is observed as demonstrated via appropriate ground water sampling.~~

~~(d) If compliance with the migration to ground water exposure pathway is determined by the narrative standards in (c) above, then the numeric migration to ground water standards in this chapter shall not apply effect on a site-specific basis.]~~

SUBCHAPTER 5. INDOOR AIR REMEDIATION STANDARDS

7:26D-5.1 Purpose

- (a) This subchapter establishes indoor air remediation standards for the vapor intrusion exposure pathway, including:
 - 1. Residential indoor air remediation standards; and
 - 2. Non-residential indoor air remediation standards.
- (b) These indoor air remediation standards ~~apply~~are applied as defaults, unless superseded by ~~Sub-chapters~~Subchapter 7, Updating Remediation Standards or Subchapter 8.—, Alternative Remediation Standards.

7:26D-5.2 Residential and non-residential indoor air remediation standards

- (a) The Department developed the indoor air human health-based criteria for the vapor intrusion exposure pathway in this chapter Appendix 1, ~~Tables 7 and 8, (Remediation Standards Tables), Tables 7 (Residential Indoor Air Remediation Standards) and 8 (Non-residential Indoor Air Remediation Standards)~~, incorporated herein by reference, as follows:
 - 1. The residential and non-residential human health-based criteria for the vapor intrusion exposure pathway, based on the equations, data sources, and conventions provided in this chapter Appendix 5, (Equations for the Development of Residential and Non-residential Indoor Air Remediation Standards for the Vapor Intrusion Exposure Pathway), incorporated herein by reference.
- (b) The residential indoor air remediation standard for each contaminant listed in this chapter Appendix 1, Table 7 is:
 - 1. The lesser value of the carcinogenic or non-carcinogenic indoor air human health-based criterion; or
 - 2. The RL, if the RL is greater than the value of the health-based criterion in (b)1 above.
- (c) The non-residential indoor air remediation standard for each contaminant listed in this chapter Appendix 1, Table 8 is:
 - 1. The lesser value of the carcinogenic or non-carcinogenic indoor air human health-based criterion; or
 - 2. The RL, if the RL is greater than the value of the health-based criterion in (c)1 above.