

Proposed Adoption of Soil and Soil Leachate Remediation Standards for Methanol and PFAS, and Adoption of Specific GWQS for GenX

July 12, 2023

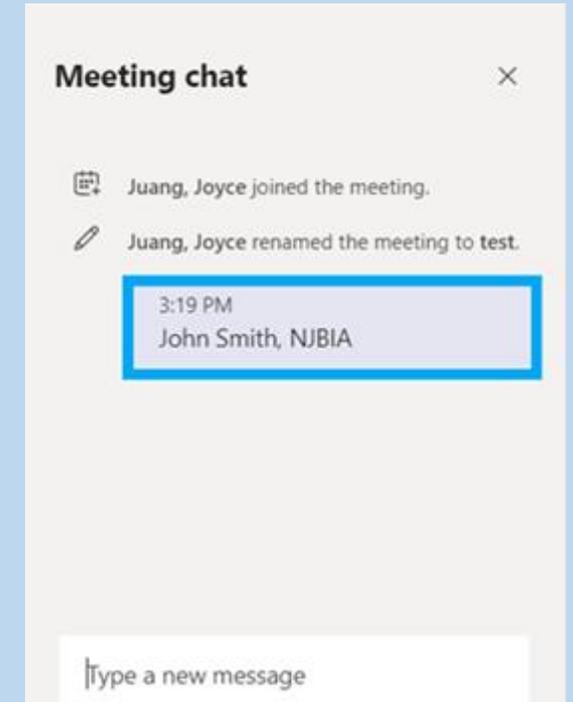


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- Please enter your first and last name and organization you represent in the chat box in lieu of a sign-in sheet.
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In House Rules Friendly Reminders



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Proposed Adoption of Soil and Soil Leachate Remediation Standards for Methanol and PFAS, and Adoption of Specific GWQS for GenX

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Allan Motter, Erica Snyder, and Jennifer Willemssen
Contaminated Site Remediation & Redevelopment
Rachel White, Water Monitoring, Standards & Pesticide Control





Effected Rules, Media, and Pathways



- **Soil and Soil Leachate Remediation Standards (N.J.A.C. 7:26D)**
 - Ingestion-Dermal Exposure Pathway
 - Inhalation Exposure Pathway
 - Migration to Ground Water Exposure Pathway
- **Ground Water Quality Standards (N.J.A.C. 7:9C)**
 - Specific GWQS for GenX



Major Initiatives of the Proposed Rulemaking



- **Formally adopting the following existing interim soil and soil leachate remediation standard at N.J.A.C. 7:26D**
 - Methanol
 - Perfluorononanoic acid (PFNA)
 - Perfluorooctanoic acid (PFOA)
 - Perfluorooctane sulfonate (PFOS)
 - Hexafluoropropylene oxide dimer acid and its ammonium salt (GenX)
- **Formally adopting the following existing interim ground water quality standard at N.J.A.C. 7:9C**
 - Hexafluoropropylene oxide dimer acid and its ammonium salt (GenX)

Basis for the Proposed Rulemaking N.J.A.C. 7:26D



- Establish Remediation Standards to ensure that contaminated site soils are remediated to safe PFAS and methanol levels
- Department's Statutory Authority in N.J.S.A. 13:1D-1 et seq., 58:10-23.11a et seq., 58:10A-1 et seq., 58:10B-1 et seq.
- N.J.A.C. 7:26D-6. provides the authority to adopt interim standards and requirement to replace with duly promulgated soil and soil leachate remediation standards as soon as reasonably possible

Proposed Changes to N.J.A.C. 7:26D



- Update Appendix 1 to list soil and soil leachate remediation standards for methanol, PFNA, PFOA, PFOS, and GenX
- Update Appendix 10, Chemical and Physical Properties of Contaminants, for methanol, PFNA, PFOA, PFOS, and GenX
- Update Appendix 11, Toxicity Factors Used in the Development of Remediation Standards, for methanol, PFNA, PFOA, PFOS, and GenX

What will NOT change in N.J.A.C. 7:26D



- Rule text
- Appendices 2, 3, 4, 5, 6, 7, 8, 9, and 12

Proposed Changes to N.J.A.C. 7:26E



- Update the Technical Requirements for Site Remediation (N.J.A.C. 7:26E) 2.1(c)1ii to list 1,4-dioxane, PFNA, PFOA, PFOS, and GenX
- Methanol will not be added to N.J.A.C. 7:26E-2.1(c)1ii

Soil Remediation Standards for the Ingestion-Dermal Exposure Pathway

Contaminant	CAS No.	Non-Carcinogenic Health-Based Criterion (mg/kg)		Carcinogenic Health-Based Criterion (mg/kg)		Reporting Limit (mg/kg)	Soil Remediation Standard Ingestion-Dermal (mg/kg)	
		Residential Criterion	Nonresidential Criterion	Residential Criterion	Nonresidential Criterion		Residential Standard	Nonresidential Standard
Methanol	67-56-1	160,000	NA	NA	NA	5	160,000	NA
Perfluorononanoic acid (PFNA)	375-95-1	0.047	0.67	NA	NA	0.001 ¹	0.047	0.67
Perfluorooctanoic acid (PFOA)	335-67-1	0.13	1.8	NA	NA	0.001 ¹	0.13	1.8
Perfluorooctane sulfonate (PFOS)	1763-23-1	0.11	1.6	NA	NA	0.001 ¹	0.11	1.6
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	0.23	3.9	NA	NA	0.01 ¹	0.23	3.9

¹The laboratory-specific reporting limit for the User-defined method should be used. The value listed in table was obtained from User-defined methods approved and certified by the Office of Quality Assurance.

Soil Remediation Standards for the Inhalation Exposure Pathway

Contaminant	CAS No.	Non-Carcinogenic Health-Based Criterion (mg/kg)		Carcinogenic Health-Based Criterion (mg/kg)		Reporting Limit (mg/kg)	Soil Remediation Standard Ingestion-Dermal (mg/kg)	
		Residential Criterion	Nonresidential Criterion	Residential Criterion	Nonresidential Criterion		Residential Standard	Nonresidential Standard
Methanol	67-56-1	NA	NA	NA	NA	5	NA	NA
Perfluorononanoic acid (PFNA)	375-95-1	NA	NA	NA	NA	0.001 ¹	NA	NA
Perfluorooctanoic acid (PFOA)	335-67-1	NA	NA	NA	NA	0.001 ¹	NA	NA
Perfluorooctane sulfonate (PFOS)	1763-23-1	NA	NA	NA	NA	0.001 ¹	NA	NA
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	NA	NA	NA	NA	0.01 ¹	NA	NA

¹The laboratory-specific reporting limit for the User-defined method should be used. The value listed in table was obtained from User-defined methods approved and certified by the Office of Quality Assurance.

Soil Ingestion-Dermal Toxicity Factors

Contaminant	CAS No.	Soil Ingestion-dermal Toxicity Factor(s)
Methanol	67-56-1	IRIS RfD (2013) 2 mg/kg-day
Perfluorononanoic acid (PFNA)	375-95-1	NJDWQI RfD (2015) 7.4E-07 mg/kg-day
Perfluorooctanoic acid (PFOA)	335-67-1	NJDWQI RfD (2017) 2E-06 mg/kg-day NJDWQI SF (2017) 2.5 (mg/kg-day) ⁻¹
Perfluorooctane sulfonate (PFOS)	1763-23-1	NJDWQI RfD (2017) 1.8E-06 mg/kg-day NJDWQI SF (2017) 9 (mg/kg-day) ⁻¹
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	EPA Office of Water RfD (2021) 3E-06 mg/kg-day

Soil Inhalation Toxicity Factors

Contaminant	CAS No.	Soil Ingestion-dermal Toxicity Factor(s)
Methanol	67-56-1	IRIS RfC (2013) 20 mg/m ³
Perfluorononanoic acid (PFNA)	375-95-1	No inhalation-based toxicity factors are available
Perfluorooctanoic acid (PFOA)	335-67-1	No inhalation-based toxicity factors are available
Perfluorooctane sulfonate (PFOS)	1763-23-1	No inhalation-based toxicity factors are available
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	No inhalation-based toxicity factors are available

Soil Remediation Standards for the Migration to Ground Water Exposure Pathway

Contaminant	CAS No.	Ground Water Remediation Standard (µg/L)	Migration to Ground Water Soil Criterion (mg/kg)	Soil Saturation Limit (mg/kg)	Reporting Limit (mg/kg)	Soil Remediation Standard Migration to Ground Water (mg/kg)
Methanol	67-56-1	4,000	12	160,000	5	12
Perfluorononanoic acid (PFNA)	375-95-1	0.013	Area of concern / Site-specific ¹	NA	0.001 ²	Area of concern / Site-specific ¹
Perfluorooctanoic acid (PFOA)	335-67-1	0.014	Area of concern / Site-specific ¹	NA	0.001 ²	Area of concern / Site-specific ¹
Perfluorooctane sulfonate (PFOS)	1763-23-1	0.013	Area of concern / Site-specific ¹	NA	0.001 ²	Area of concern / Site-specific ¹
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	0.02	Area of concern/ Site-specific ¹	NA	0.01 ²	Area of concern/ Site-specific ¹

¹To be calculated using the synthetic precipitation leaching procedure (SPLP) and the Department's PFAS SPLP calculator

²The laboratory-specific reporting limit for the User-defined method should be used. The value listed in table was obtained from User-defined methods approved and certified by the Office of Quality Assurance.

Soil Leachate Remediation Standards for the Migration to Ground Water Exposure Pathway

Contaminant	CAS No.	Ground Water Remediation Standard ($\mu\text{g/L}$)	Soil Leachate Standard ($\mu\text{g/L}$)
Methanol	67-56-1	4,000	80,000
Perfluorononanoic acid (PFNA)	375-95-1	0.013	0.26
Perfluorooctanoic acid (PFOA)	335-67-1	0.014	0.28
Perfluorooctane sulfonate (PFOS)	1763-23-1	0.013	0.26
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	0.02	0.40

Chemical Properties

Contaminant	CAS No.	Water Solubility (mg/L)	Henry's Law Constant (atm·m ³ /mol, 25°C)	Henry's Law Constant (dimensionless, 25°C)	Air Diffusivity (cm ² /sec)	Water Diffusivity (cm ² /sec)	Soil Organic Carbon-Water Partition Coefficient, K _{oc} (L/kg)	Soil-Water Partition Coefficient, K _d (L/kg)
Methanol	67-56-1	1000000	4.6E-6	1.9E-4	1.6E-1	1.6E-5	1	NA
Perfluorononanoic acid (PFNA)	375-95-1	NA	NA	NA	NA	NA	NA	Area of concern / Site-specific
Perfluorooctanoic acid (PFOA)	335-67-1	NA	NA	NA	NA	NA	NA	Area of concern / Site-specific
Perfluorooctane sulfonate (PFOS)	1763-23-1	NA	NA	NA	NA	NA	NA	Area of concern / Site-specific
Hexafluoropropylene oxide dimer acid & Its ammonium salt (GenX)	13252-13-6 & 62037-80-3	NA	NA	NA	NA	NA	NA	Area of concern / Site-specific

Adoption of Specific GWQS for GenX



- USEPA finalized its toxicity assessment of GenX in 2021
- NJDEP reviewed USEPA's basis and concluded that it is scientifically justified and health protective
- Interim Specific GWQS for GenX was established June 2023
- N.J.A.C. 7:9C-1.7(c)2ii provides that interim specific criteria be adopted as soon as reasonably possible by rule

Adoption of Specific GWQS for GenX (cont.)



- Update Appendix Table 1 in the GWQS (N.J.A.C. 7:9C) to include GenX with no change to the criterion, PQL, or standard:

Appendix Table 1: Specific Ground Water Quality Criteria - Class II-A and Practical Quantitation Levels

Constituent	CASRN	Specific Ground Water Quality Criterion (µg/L)	Practical Quantitation Level (PQL) (µg/L)	Higher of PQL and Ground Water Quality Criterion (µg/L)
Hexafluoropropylene oxide dimer acid & its ammonium salt (GenX)	13252-13-6 & 62037-80-3	0.02	0.0075	0.02

- Interim specific and specific GWQS are implemented through CSRR as remediation standards and the NJ Pollutant Discharge Elimination System (NJPDES) discharge to ground water (DGW) permit program.

Proposed Adoption of Interim Soil and Soil Leachate Remediation Standards for Methanol and PFAS, and Adoption of Specific GWQS for GenX

July 12, 2023



Comments?



Contact Information



Contaminated Site Remediation & Redevelopment

- Information on the Remediation Standards, including the basis and background: <https://www.nj.gov/dep/srp/guidance/rs/index.html>
[https://www.nj.gov/dep/srp/guidance/rs/interim soil ia rl rs.html](https://www.nj.gov/dep/srp/guidance/rs/interim_soil_ia_rl_rs.html)
- Email: Allan.Motter@dep.nj.gov

Division of Water Monitoring, Standards & Pesticide Control

- Information on the GWQS, including the basis and background for GenX: <https://nj.gov/dep/wms/bears/gwqs.htm>
- Email: gwqs@dep.nj.gov



Thank you!

