Remediation Standards – N.J.A.C. 7:26D
Overview of Subchapters 6 and 7

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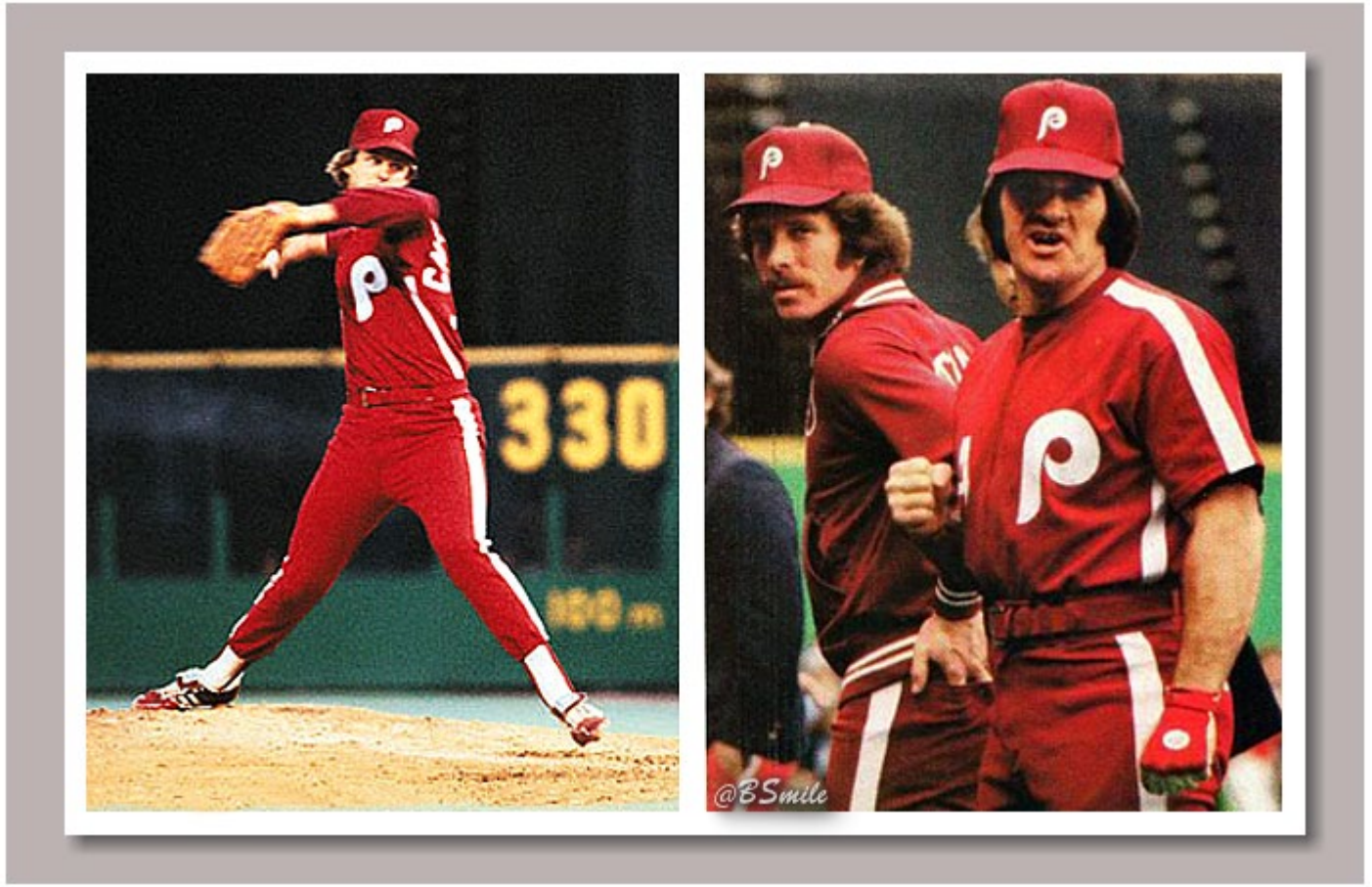
Fun Fact

June 9, 1979: Phillies wear burgundy uniforms for the first time.



Interim Remediation Standards

Subchapter 6

Interim remediation standards can be developed for contaminants for which a promulgated remediation standard does not currently exist.

Interim remediation standards can be developed for soil, soil leachate, indoor air, and ground water using:

- For ground water, the procedures set forth in the Ground Water Quality Standards at N.J.A.C. 7:9C-1.7(c);
- For the soil ingestion-dermal exposure pathway, the procedures set forth at N.J.A.C. 7:26D Appendix 2;
- For the soil inhalation exposure pathway, the procedures set forth at N.J.A.C. 7:26D Appendix 3;
- For the migration to ground water exposure pathway, the procedures set forth at N.J.A.C. 7:26D Appendix 4;
- For indoor air for the vapor intrusion exposure pathway, the procedures set forth at N.J.A.C. 7:26D Appendix 5

As the surface water quality standards do not have an interim process, there is no interim process for surface water remediation standards.

Interim Remediation Standards

Subchapter 6

- The Department must approve an interim remediation standard before it can be used

- The effective date of the interim remediation standard is the date of approval

The Department shall publish on its website all of the interim remediation standards developed and the technical basis used in their derivation

Interim Remediation Standards

Table of Interim Specific Ground Water Quality Criteria (ISGWQC), Interim PQLs (IPQLs), and Interim Specific Ground Water Quality Standards (ISGWQS) for Constituents in Class II-A Ground Water

Interim specific ground water quality criteria and interim PQLs are expressed in micrograms per liter (µg/L), which is equivalent to parts per billion (ppb)

Constituent	CASRN	ISGWQC	IPQL	Constituent Standard = Higher of IPQL and ISGWQC	Effective Date	Fact Sheet	Technical Support Documents
There are currently no interim specific ground water quality standards.							

Explanation of Terms:

CASRN = Chemical Abstracts System Registration Number

ISGWC = Interim Specific Ground Water Quality Criterion

IPQL = Interim Practical Quantitation Level

Updating Remediation Standards

Subchapter 7

The Department can update an existing remediation standard for soil (ingestion-dermal and inhalation exposure pathways) or indoor air (vapor intrusion pathway) when:

- The USEPA revises toxicity information contained in the Integrated Risk Information System (IRIS) database;
- The New Jersey Drinking Water Quality Institute develops new or revised toxicity information;
- The Department uses new or revised toxicity information when promulgating a revised ground water quality standard; or
- The USEPA revises or replaces its Integrated Environmental Uptake Biokinetic (IEUBK) Model and Adult Lead Methodology (ALM) and input parameters for lead.

Updating Remediation Standards

The 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 includes seven steps:

- Step 1. Draft Development – Included in this step is a public meeting held to obtain input from the scientific community and the general public. Announcements of public meetings and other opportunities for public input are posted on the IRIS website.

- Step 2. Agency Review

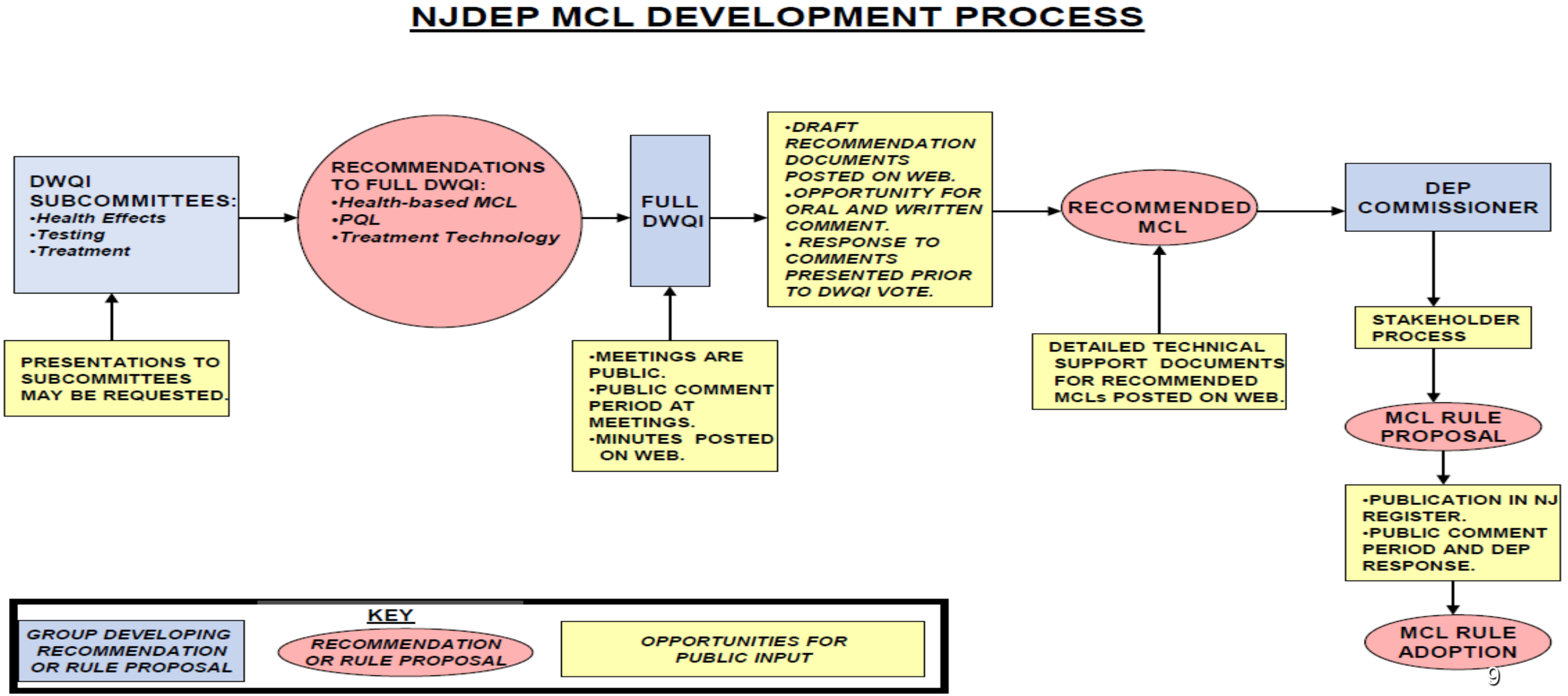
- Step 3. Interagency Science Consultation

Updating Remediation Standards

- Step 4. **Public Comment and External Peer Review** - The draft assessment is released for public review and comment as part of the external peer review process. The USEPA announces the availability of the draft assessment and draft peer review charge questions for public review and comment on the IRIS website. A public meeting is held to discuss the draft assessment, draft peer review charge questions, and specific science questions raised by the assessment. The IRIS Program revises the draft assessment and peer review charge questions in response to the public's comments. Additionally, the USEPA prepares a response to major public comments received during the public comment period. Subsequently, the draft assessment and peer review charge questions are released for external peer review. During external peer review, a public external peer review meeting is held; the public may attend the peer reviewers' discussion of the draft assessment and provide comments.

- Step 5. Revise Assessment
- Step 6. Final Agency Review/Interagency Science Discussion
- Step 7. Final Assessment - The final IRIS assessment is posted to the IRIS website.

Updating Remediation Standards



Updating Remediation Standards

Subchapter 7

The Department can update an existing soil and a soil leachate remediation standard for the migration to ground water exposure pathway when a ground water quality criterion is updated pursuant to the Ground Water Quality Standards at N.J.A.C. 7:9C-1.7(c)5

Updating Remediation Standards

Subchapter 7

When the Department develops an updated remediation standard, a Notice of Administrative Change is published in the New Jersey Register and a copy is posted on the Department's website at: https://www.nj.gov/dep/rules/adminchg.html

Updating Remediation Standards

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Notices of Administrative Change

The following notices of administrative change are scheduled for publication on the dates indicated below.

Publication Date	Notice Name
11/2/2020	General Operating Permit, GP-009 for a Boiler greater than or equal to 10 MMBTU per hour and less than 50 MMBTU per hour for major facilities (pdf)
4/6/2020	Notice of Administrative Corrections; Solid Waste Utility Regulations, N.J.A.C. 7:26H-6, Appendix A, Uniform Bid Specifications (pdf)
4/6/2020	GP-021 / GOP-005 for Combined Heat and Power (CHP) Combustion Turbine(s); and GP-022 / GOP-006 for CHP Spark Ignition Reciprocating Engine(s) (pdf)
4/6/2020	GP-019A for Temporary Equipment (pdf)
1/21/2020	Modification of Commercial Black Sea Bass and Summer Flounder Trip Limits (pdf)
11/4/2019	Consumer Price Index Percentage Adjustments to Air Contaminant Emission Fees and Base and Supplementary Fee Schedules, and FY 2020 Threshold Dollar Amount for Reconstruction (pdf)
10/7/2019	Notice of Administrative Changes, Fee Schedule for Water Supply Allocation Permits N.J.A.C. 7:19-3.6 (pdf)
9/16/2019	Revised GP-005B Notice of Availability (pdf)
9/16/2019	Revised GP-005A Notice of Availability (pdf)
8/20/2019	Modification of Commercial Summer Flounder Trip Limits (pdf)
8/20/2019	Modification of Recreational and Commercial Blueline Tilefish and Atlantic Coastal Shark Regulations (pdf)
7/15/2019	Coastal Zone Management Rules, Freshwater Wetlands Protection Act Rules, and Flood Hazard Area Control Act Rules (pdf)
6/3/2019	Modification of Recreational Summer Flounder Season and Commercial Summer Flounder Trip Limits (pdf)

Updating Remediation Standards

Subchapter 7

The notice of administrative change shall identify the remediation standard to be updated including the relevant media and exposure pathway, the contaminant, the basis for the administrative change, and the revised criterion to be listed at N.J.A.C. 7:26D Appendix 1.

An updated remediation standard shall be effective on the date the Notice of Administrative Change is filed with the Office of Administrative Law.

Updating Remediation Standards

Subchapter 7

An updated remediation standard shall be applied to all sites.
However, the person responsible for conducting the remediation **may** continue to use a remediation standard that is specified in a remedial action workplan or remedial action report for a site, provided that:

- The remedial action workplan or remedial action report is submitted no later than six months after the effective date of the updated standard;
- The remedial action workplan or remedial action report is approved by the Department or is certified by a licensed site remediation professional;
- The remediation standard specified in the remedial action workplan or remedial action report for a given contaminant that is less than an order of magnitude compared to the updated remediation standard; and
- The remedial action shall comply with the applicable remediation timeframes.

Questions?

Remediation Standards – N.J.A.C. 7:26D
General Overview

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Soil Remediation Standards
Ingestion-Dermal Exposure Pathway

2017 standard existed but no 2021 standard was adopted		13[a]/13[b]	
2021 standard adopted but no 2017 standard existed		14/14	
2017 standard existed and 2021 standard adopted		117/113	
		18/15	2021 adopted standard is lower than the 2017 standard
			2/4 - Concentration difference an order of magnitude or more
		33/3	2021 adopted standard equal to the 2017 standard
[a] Number of Contaminants			
[b] Residential/Nonresidential		66/95	2021 adopted standard is greater than the 2017 standard

Soil Remediation Standards
Inhalation Exposure Pathway

2017 standard existed but no 2021 standard was adopted		49[a]/69[b]	
2021 standard adopted but no 2017 existed		7/3	
2017 standard existed and 2021 standard adopted		33/27	
		13/1	2021 adopted standard is lower than the 2017 standard
			1/0 - Concentration difference an order of magnitude or more
		1/0	2021 adopted standard equal to 2017 standard
[a] Number of Contaminants			
[b] Residential/Nonresidential		19/26	2021 adopted standard is greater than 2017 standard

Soil Remediation Standards
Soil – Water Partition
Migration to Ground Water Exposure Pathway

Screening Level existed but no 2021 standard was adopted		27[a]	
2021 standard adopted but no screening level existed		10	
Screening Level existed and 2021 standard adopted		96	
		39	2021 adopted standard is lower than the prior screening level
			5 - Concentration difference an order of magnitude or more
		18	2021 adopted standard equal to the prior screening level
		39	2021 adopted standard is greater than the prior screening level

[a] Number of Contaminants

Soil Leachate Standards
Synthetic Precipitation Leachate Procedure
Migration to Ground Water Exposure Pathway

Screening Level existed but no 2021 standard was adopted		27[a]	
2021 standard adopted but no screening level existed		10	
Screening Level existed and 2021 standard adopted		96	
		0	2021 adopted standard is lower than the prior screening level
			0 - Concentration difference an order of magnitude or more
		63	2021 adopted standard equal to the prior screening level
		33	2021 adopted standard is greater than the prior screening level

[a] Number of Contaminants

Indoor Air Remediation Standards
Vapor Intrusion Exposure Pathway

Screening Level existed but no 2021 standard was adopted		14[a]/14[b]	
2021 standard adopted but no screening level existed		2/2	
Screening Level existed and 2021 standard adopted		33/33	
		12/9	2021 adopted standard is lower than the prior screening level
			1 /1- Concentration difference an order of magnitude or more
		14/18	2021 adopted standard equal to the prior screening level
[a] Number of Contaminants			
[b] Residential/Nonresidential		7/6	2021 adopted standard is greater than the prior screening level

Remediation Standards General Information

Significant Figures

- Soil, soil leachate, and indoor air remediation standards are based on two significant figures
- Surface Water and Ground Water Remediation Standards are based on the number of significant figures used in the Surface Water Quality Standards (2 for most contaminants) and Ground Water Quality Standards (1 for most contaminants but moving to 2 as the standards are updated)
- Pursuant to Department policy that all standards will be based on two significant figures as rules are readopted/amended

Remediation Standards General Information

Rounding

- American Society for Testing and Materials (ASTM) Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (ASTM E29-13)
- If the first number beyond the second significant figure is less than five, then the second significant figure remains the same: 1.43 rounds to 1.4
- If the first number beyond the second significant figure is greater than five, then the second significant figure increases by one: 12.8 rounds to 13
- If the first number beyond the second significant figure is five and there are other non-zero numbers beyond that five, then the second significant increases by one: 15.502 rounds to 16

Remediation Standards General Information

Rounding

- American Society for Testing and Materials (ASTM) Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (ASTM E29-13)

- If the first number beyond the second significant figure is five, and there are no numbers beyond the five (except zeros), then the second significant figure is rounded to the closest even number: 3.550 rounds to 3.6 3.650 rounds to 3.6

Remediation Standards – N.J.A.C. 7:26D Rule Applicability

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Rule Applicability

The discussion of rule applicability focuses on:

- Soil remediation standards (ingestion-dermal, inhalation, and migration to ground water exposure pathways)
- Soil leachate remediation standards (migration to ground water exposure pathway)
- Indoor air remediation standards (vapor intrusion exposure pathway)

The May 17, 2021, Remediation Standards rule amendments did not affect:

- Ground Water Remediation Standards
- Surface Water Remediation Standards

Test Your Knowledge

The May 17, 2021, Remediation Standards rule amendments did not affect :

A. Soil Remediation Standards
B. Ground Water Remediation Standards
C. Surface Water Remediation Standards
D. B and C

Test Your Knowledge

The May 17, 2021, Remediation Standards rule amendments did not affect :

A. Soil Remediation Standards
B. Ground Water Remediation Standards
C. Surface Water Remediation Standards
D. B and C

Rule Applicability (cont'd)

N.J.A.C. 7:26D-1.4(b) The person responsible for conducting the remediation shall comply with the remediation standards set forth in the Remediation Standards Rules

Three exceptions

- Use of the Soil Cleanup Criteria vs June 2008 adopted remediation standards (1.4(b)1)
- Use of June 2008 remediation standards vs September 2017 updated remediation standards (1.4(b)2)
- Use of September 2017 remediation standards vs May 2021 adopted remediation standards (1.4(b)3)

Rule Applicability (No RAWP/RAR)

On May 17, 2021 (effective date of the Remediation Standards amendments):

- Sites/areas of concern without a Department approved Remedial Action Workplan (RAWP) (or Remedial Action Report (RAR) if applicable); **or**
- Sites/areas of concern without an LSRP certified RAWP (or RAR if applicable) that has been submitted to the Department

Site/area of concern **must** be remediated using the May 17, 2021 remediation standards

Rule Applicability (RAWP/RAR but No Final Remediation Document)

Pursuant to the Brownfield Act N.J.S.A. 58:10B-12j:

- Sites/areas of concern with a Department approved Remedial Action Workplan (RAWP) (or Remedial Action Report (RAR) if applicable);

or

- Sites/areas of concern with an LSRP certified RAWP (or RAR if applicable) that has been submitted to the Department

Such sites/areas of concern **may** be remediated using the September 2017 remediation standards including site-specific impact to ground water standards and site-specific indoor air standards for the vapor intrusion exposure pathway

Rule Applicability (RAWP/RAR but No Final Remediation Document)

Caveats

Remedial action must comply with May 17, 2021, remediation standards for contaminants that are an order of magnitude or more stringent than the September 2017 remediation standards or site-specific soil or soil leachate remediation standards for the migration to groundwater exposure pathway and site-specific indoor air remediation standards for the vapor intrusion exposure pathway

AND

The remedial action must comply with applicable regulatory and mandatory timeframes

Rule Applicability (RAWP/RAR but No Final Remediation Document)

Exception

Can conduct a remedial action using the September 2017 remediation standards (including site-specific impact to ground water standards and site-specific indoor air standards for the vapor intrusion pathway)

IF

1. The Department approves an RAWP or RAR by November 17, 2021 (6 months after the effective date of the Remediation Standards rule adoption); or
2. An LSRP certifies an RAWP or RAR that is submitted to the Department by November 17, 2021 (6 months after the effective date of the Remediation Standards rule adoption)

Rule Applicability (RAWP/RAR but No Final Remediation Document)

Caveats

Remedial action must comply with May 17, 2021, remediation standards for contaminants that are an order of magnitude or more stringent than the September 2017 remediation standards or site-specific soil or soil leachate remediation standards for the migration to groundwater exposure pathway and site-specific indoor air remediation standards for the vapor intrusion exposure pathway

AND

The remedial action must comply with applicable regulatory and mandatory timeframes

Questions?

Remediation Standards – N.J.A.C. 7:26D
Order of Magnitude

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Order of Magnitude

The following tables list, by exposure pathway, those contaminants whose May 17, 2021, remediation standards have decreased by an order of magnitude or more compared to the prior remediation standard.

Sites or areas of concern that are active on or after May 17, 2021, must comply with the remediation standards contained in the tables.

Order of Magnitude Contaminants
Soil Ingestion-Dermal and Soil Inhalation Exposure Pathways
Soil Remediation Standards

Residential Exposure Scenario

Contaminant	CAS #	Prior Soil Remediation Standard (mg/kg)	2021 adopted soil remediation standard (mg/kg)
Benzaldehyde	100-52-7	6,100 (ingestion-dermal)	170 (ingestion-dermal)
Caprolactam	105-60-2	31,000 (ingestion-dermal)	290 (ingestion-dermal)
Cobalt (total)	744048-4	1,600 (ingestion-dermal)	23 (ingestion-dermal)
Ethylbenzene	100-41-4	7,800 (ingestion-dermal)	10 (inhalation)
Hexachlorocyclopentadiene	77-47-4	45 (inhalation)	2.7 (inhalation)

Non-Residential Exposure Scenario

Contaminant	CAS #	Prior Soil Remediation Standard (mg/kg)	2021 adopted soil remediation standard (mg/kg)
Benzaldehyde	100-52-7	68,000 (ingestion-dermal)	910 (ingestion-dermal)
Butylbenzyl phthalate	85-68-7	14,000 (ingestion-dermal)	1,300 (ingestion-dermal)
Caprolactam	105-60-2	340,000 (ingestion-dermal)	1,300 (inhalation
Ethylbenzene	100-41-4	110,000 (ingestion-dermal)	48 (inhalation)

Order of Magnitude Contaminants
Migration to Ground Water Exposure Pathway
Soil Water Partition Remediation Standards

Contaminant	CAS #	2013 former impact to ground water soil partition screening level (mg/kg)	2021 migration to ground water soil partition standard (mg/kg)
Bis(2-ethylhexyl)phthalate	117-81-7	1,200	14
Copper (total)	7440-50-8	11,000	910
4,4'-DDE (p,p'-DDX)	72-55-9	18	0.47
4,4'-DDT	50-29-3	11	0.67
Hexachlorocyclopentadiene	77-47-4	320	2.5

Order of Magnitude Contaminants Vapor Intrusion Exposure Pathway Indoor Air Remediation Standards

Residential Exposure Scenario

Contaminant	CAS #	Prior VI Residential Indoor air screening level (ug/m3)	2021 adopted VI Residential Indoor air remediation standard (ug/m3)
1,1-Dichloroethene (1,1-Dichloroethylene)	75-35-4	210	21

Non-Residential Exposure Scenario

Contaminant	CAS #	Prior VI Non-Residential Indoor air screening level (ug/m3)	2021 adopted VI Non-Residential Indoor air remediation standard (ug/m3)
1,1-Dichloroethene (1,1-Dichloroethylene)	75-35-4	880	88

Rule Applicability (Sites with a Final Remediation Document)

Pursuant to the Brownfield Act at N.J.S.A. 58:10B-13e:

Sites or areas of concern that have a final remediation document (No Further Action Letter or Response Action Outcome) do not have to comply with subsequent changes in remediation standards unless a remediation standard has decreased by an order of magnitude or more compared to the prior remediation standard

Order of Magnitude N.J.S.A. 58:10B-13e

Sites or areas of concern impacted by a remediation standard that has decreased by an order of magnitude or more must conduct an evaluation to determine if the remedy at the site or area of concern remains protective ("order of magnitude evaluation")

Order of Magnitude N.J.S.A. 58:10B-13e

The order of magnitude evaluation is a two-step process:

Step 1: The concentrations of a given contaminant at the site or area of concern are compared against the new remediation standard

- If the difference between on-site concentrations and the new remediation standard are less than an order magnitude, then no further action is required
- If the difference between on-site concentrations and the new remediation standard are an order magnitude or greater, then step 2 is required

Order of Magnitude N.J.S.A. 58:10B-13e

Step 2: The site or areas of concern are evaluated to determine if the existing remedy remains protective based on the new remediation standard(s)

- If the evaluation determines that the remedy remains protective, no further action is required
- If the evaluation determines the existing remedy is not protective, additional remediation is required to achieve compliance with the new remediation standard

Order of Magnitude N.J.S.A. 58:10B-13e

Additional Complexity

- Remediation standards have changed over time
- Depending on the magnitude of change for a given contaminant, sites or areas of concern impacted by order of magnitude changes may vary in time depending on the contaminant in question

Order of Magnitude N.J.S.A. 58:10B-13e

Contaminant	1999 Residential Direct Contact Soil Cleanup Criteria (mg/kg)	2008 Residential Direct Contact Soil Remediation Standard (mg/kg)	2017 Residential Direct Contact Soil Remediation Standard (mg/kg)	2021 Residential Soil Ingestion-Dermal Health-Based Criterion Criterion (mg/kg)	2021 Residential Soil Inhalation Health-Based Criterion Criterion (mg/kg)
Contaminant subject to order of magnitude - Final remediation documents issued prior to 11/18/21					
Ethylbenzene	1,000	7,800	7,800	7,800	10
Contaminants subject to order of magnitude - Final remediation documents issued between 6/3/08 and 11/17/21					
Benzaldehyde	NR	6100	6100	170	NA
Contaminant subject to order of magnitude - Final remediation documents issued between 6/3/08 and 3/17/18					
1,1'-Biphenyl	NR	3,100	61	87	NA
Contaminant subject to order of magnitude - Final remediation documents issued prior to 3/18/18					
Cyanide	1,100	1,600	47	47	NA
Contaminants subject to order of magnitude - Final remediation documents issued prior to 12/3/08					
Naphthalene	230	6	6	2,500	5.7
Contaminants no longer subject to order of magnitude					
Chloroform	19	0.6	0.6	780	590
Contaminant no longer regulated					
Bis(2-chloroisopropyl)ether	2,300	23	23	NR	NR

Order of Magnitude Contaminants
Soil Ingestion-Dermal and Soil Inhalation Exposure Pathways
Soil Remediation Standards

Contaminants subject to order of magnitude - Final remediation documents issued prior to 11/18/21	Contaminants subject to order of magnitude - Final remediation documents issued between 6/2/08 and 11/17/21	Contaminant subject to order of magnitude - Final remediation documents issued between 6/2/08 and 3/18/18	Contaminant subject to order of magnitude - Final remediation documents issued prior to 3/19/18
Ethylbenzene	Benzaldehyde	1,1'-Biphenyl	Cyanide
Hexachlorocyclopentadiene - Residential Only	Butylbenzyl phthalate - Nonresidential Only		
	Caprolactam		
	Cobalt – Residential Only		

Order of Magnitude Contaminants
Soil Ingestion-Dermal and Soil Inhalation Exposure Pathways
Soil Remediation Standards

Contaminants subject to order of magnitude - Final remediation documents issued prior to 12/3/08	Contaminants no longer subject to order of magnitude	Contaminant no longer regulated
Bromomethane –Nonresidential Only	Bromodichloromethane	Bis(2-chloroisopropyl)ether
4-Chloroaniline	Chloroform	
Dibromochloromethane	Chloromethane	
Naphthalene	1,4-Dichlorobenzene	
Nitrobenzene – Nonresidential Only	1,1-Dichloroethane	
	Hexachlorocyclopentadiene – Nonresidential Only	
	4-Methylphenol	
	1,1,2,2-Tetrachloroethane – Nonresidential Only	
	1,1,2-Trichloroethane	

Order of Magnitude Evaluation

When will the Department require the order of magnitude evaluation?

- Sites or areas of concern with a Department-approved or LSRP-certified Remedial Action Work Plan or Remedial Action Report, but no Final Remediation Document has been issued
  - As these sites or areas of concern are active cases, the Department will require the person responsible for conducting the remediation to conduct the order of magnitude evaluation and perform any additional remediation pursuant to the Technical Requirements at N.J.A.C. 7:26E-5.1(d)4 prior to the issuance of a Final Remediation Document

Order of Magnitude Evaluation

7:26E-5.1 Remedial action requirements:

(d) The person responsible for conducting the remediation shall ensure that each remedial action:

4. Complies with all applicable remediation standards in effect at the time the remedial action workplan was approved by the Department or a licensed site remediation professional provided, however, that if an applicable numeric remediation standard decreases by an order of magnitude or more prior to the issuance of a final remediation document for the site being remediated, the person responsible for conducting remediation shall conduct all additional remedial action necessary to comply with the revised remediation standard;

Order of Magnitude Evaluation

When will the Department require the order of magnitude evaluation?

- Sites or areas of concern with a Final Remediation Document that have a remedy using engineering and/or institutional controls (limited restricted and restricted use remedial actions)
  - The person responsible for maintaining the engineering and/or institutional control must perform the order of magnitude evaluation as part of the biennial protectiveness certification pursuant to the Administrative Requirements for the Remediation of Contaminated Sites, N.J.A.C. 7:26C-7.7 through 7.9.

Order of Magnitude Evaluation

When will the Department require the order of magnitude evaluation?

- Sites or areas of concern with a Final Remediation Document that do not have a remedy using engineering and/or institutional controls (unrestricted use remedial action)
  - The order of magnitude evaluation will be conducted whenever a site or area "re-enters" the Site Remediation Program (i.e., an ISRA trigger, child-care facility license renewal, property sale that requires update of site conditions for loan approval, etc.). The evaluation shall be conducted pursuant to the Technical Requirements, N.J.A.C. 7:26E-3.2(a)5 and 6.

Order of Magnitude Evaluation

7:26E-3.2 Preliminary assessment report

(a) The person responsible for conducting the remediation to whom N.J.A.C. 7:26E-3.1(b)applies shall prepare a preliminary assessment report that includes:

5. An evaluation to determine if there is an order of magnitude difference between the concentration of any contaminant in any area of concern and any remediation standard applicable at the time of comparison to the area of concern if there is a prior final remediation document for the area of concern. If there is an order of magnitude difference, then the person responsible for conducting the remediation shall evaluate the protectiveness of any existing engineering or institutional controls on the area of concern and otherwise determine whether additional remediation may be required at the area of concern to ensure the area of concern remains protective of the public health, safety and the environment; and

Order of Magnitude Evaluation

7:26E-3.2 Preliminary assessment report

(a) The person responsible for conducting the remediation to whom N.J.A.C. 7:26E-3.1(b)

applies shall prepare a preliminary assessment report that includes:

6. A recommendation for each area of concern identified at the site, supported by a written rationale, that either:

i. Additional remediation is necessary because:

(2) There is an order of magnitude change in an applicable remediation standard and the prior remediation is no longer protective of the public health and safety and the environment because it is not in compliance with the standard applicable at the time of the comparison;

Order of Magnitude Contaminants Surface Water Remediation Standards

Surface Water Remediation Standards

- There are no surface water remediation standards impacted by an order of magnitude or more decrease in a surface water remediation standard
- Therefore, an Order of Magnitude evaluation does not need to be conducted

Order of Magnitude Contaminants Ground Water Remediation Standards

Ground Water Remediation Standards

- Ground water quality standards were first deemed ground water remediation standards by reference in the Technical Requirements effective February 3, 2003
- The ground water quality standards in effect at that time were the January 7, 1993, Ground Water Quality Standards

Order of Magnitude Contaminants Ground Water Remediation Standards

- The Ground Water Quality Standards were amended effective November 7, 2005. The amended ground water quality standards became the new ground water remediation standards effective November 7, 2005

- The ground water remediation standards of 14 contaminants decreased by an order of magnitude or more

Order of Magnitude Contaminants Ground Water Remediation Standards

Constituent	CASRN	Prior GWQS ug/l*	11/7/2005 GWQS ug/l
Acrylonitrile	107-13-1	50	2**
Adipates (Di(2-ethylhexyl)adipate) DEHA	103-23-1	400	30
Benzo(b)fluoranthene (3,4-Benzofluoranthene)	205-99-2	10	0.2**
Beryllium	7440-41-7	20	1
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	30	3**
Dibromochloromethane (chlorodibromomethane)	124-48-1	10	1**
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	1	0.02
Hexachlorobenzene	118-74-1	10	0.02**
Indeno (1,2,3-cd)pyrene	193-39-5	10	0.2**
Methanol	67-56-1	50,000	4,000
N-Nitrosodimethylamine	62-75-9	20	0.8**
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746-01-6	0.01	0.00001**
1,1,1,2-Tetrachloroethane	630-20-6	10	1
1,2,3-Trichloropropane	96-18-4	2	0.03**

*ug/l = micrograms per liter

**ground water standard is based on the Practical Quantitation Level (PQL) (health based criterion is less than the PQL)

Order of Magnitude Contaminants Ground Water Remediation Standards

The remediation of all sites or areas of concern that were active cases on or after November 7, 2005, are required to use the ground water remediation standards in effect November 7, 2005, for the contaminants listed above

Any site or area of concern at which any of the contaminants listed above was detected in ground water, and for which a No Further Action (NFA) letter was issued by the Department prior to May 8, 2006 (six months after November 7, 2005, amendments), requires an Order of Magnitude evaluation conducted pursuant to the Brownfield Act at N.J.S.A. 58:10B-13e

Order of Magnitude Contaminants Ground Water Remediation Standards

On November 25, 2015, the Department established interim specific ground water quality standards for 12 contaminants. No prior ground water quality standards existed for 11 of the contaminants

The remaining contaminant, 1,4-dioxane, had a prior interim specific ground water quality standard (10 ug/l) based on the practical quantitation level. The revised interim specific ground water quality standard (0.4 ug/l) was more than an order of magnitude lower than the previous interim specific ground water quality standard

Order of Magnitude Contaminants Ground Water Remediation Standards

The remediation of all sites or areas of concern that were active cases on or after November 25, 2015, are required to use the 0.4 ug/l ground water remediation standard for 1,4-dioxane.

Any site or area of concern at which 1,4-dioxane was detected in ground water and for which a final remediation document was issued (either an NFA determination issued by the Department, or a Response Action Outcome issued by the retained licensed site remediation professional (LSRP)) prior to May 26, 2016 (six months after November 25, 2005, amendments) requires an Order of Magnitude evaluation conducted pursuant to the Brownfield Act at N.J.S.A. 58:10B13e.

Test Your Knowledge

True or False:

The Ground Water Remediation Standard for 1,4-dioxane is 0.4 ug/l.

A. True

B. False

Test Your Knowledge

True or False:

The Ground Water Remediation Standard for 1,4-dioxane is 0.4 ug/l.

A. True

B. False

Order of Magnitude Contaminants Ground Water Remediation Standards

On January 16, 2018, the Department adopted amendments to incorporate interim specific ground water quality criteria, interim practical quantitation levels (PQLs), and interim standards for 23 ground water contaminants as specific ground water quality criteria, PQLs, and standards

These amendments did **not** trigger the need for Order of Magnitude evaluations

Remediation Standards – N.J.A.C. 7:26D Frequently Asked Questions

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Frequently Asked Questions

Q: If a site/area of concern has an RAWP approved/certified by November 17, 2021, can September 2017 remediation standards for some contaminants and March 17, 2021, remediation standards for other contaminants be used in the remedial action?

A: Yes (with caveat). The RAWP (or RAR if applicable) should identify for each contaminant the remediation standard used in the remedial action.

Contaminants subject to the order of magnitude provisions must be remediated to the May 17,2021, standards.

Frequently Asked Questions

Q: Will a site/area of concern impacted by a new standard be automatically granted a mandatory timeframe extension?

A: Mandatory timeframe extensions will not be automatic and need to be requested pursuant to N.J.A.C. 7:26C-3.5. Reasons for extensions related to standard changes are site-specific and need to be justified based on the specific circumstances.

Frequently Asked Questions

Q: Does an order of magnitude difference in a remediation standard for a contaminant automatically require additional remediation?

A: An evaluation is required. If the evaluation indicates that the proposed or implemented remedy remains protective, then no additional remediation is required.

Frequently Asked Questions

Q: What are some protectiveness evaluation scenarios under various remedial actions for the MGW exposure pathway?

A: There are many site-specific scenarios. Some examples are:

- For historical ground water contamination, evidence of successful ground water remediation (including demonstration of decreasing ground water contaminant concentrations) could be used as a line of evidence that contaminant sources have been remediated.
- Use of compliance options such as immobile contaminants, SESOIL and SESOIL-ATD-123 modeling, and SPLP can be used to demonstrate that additional remediation is not required.

Frequently Asked Questions

Q: What are some protectiveness evaluation scenarios under various remedial actions for other exposure pathways?

A: Some examples are:

- If contaminated soil has been excavated, such excavation may have removed contaminants subject to the order of magnitude provision. If existing post excavation data show compliance with the new remediation standard, no additional remediation is required.
- If contaminated soil has been capped, contaminants subject to the order of magnitude provision may also be capped. If existing delineation data and areas that are capped demonstrate compliance with the new remediation standard, no additional remediation is required.

Frequently Asked Questions

Q: What are some protectiveness evaluation scenarios under various remedial actions for other exposure pathways? (continued)

A: Some examples are:

- Treatment systems such as Point of Entry Treatment System (POET) and Sub Slab Depressurization System (SSDS) designed for certain contaminants may work for other contaminants subject to the order of magnitude provision. If existing treatment data show compliance with the new remediation standard, no additional remediation is required.

Additional Questions?

Thank You for Attending!

Please complete the Course Evaluation at:

https://www.surveymonkey.com/r/N3K7T53