

Site Remediation and Waste Management Program's Regulatory and Guidance Updates

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Welcome

- In-Person Attendees
- Webinar Attendees



Continuing Education Credits (CECs)

SRP Licensing Board **has not yet approved**

1.5 Regulatory CEC

1.5 Technical CEC

for this Training Class

Attendance Requirements:

- **In-Person Attendance:** Must sign-in / sign-out: May not miss more than 45 minutes of the training
- **Webinar participants:** must be logged-in for entire session and answer 3 out of 4 test questions (randomly inserted in the presentation)



CECs: What's the Process?

If the SRPL Board HAS Approved CECs for the course:

- DEP compiles a list of “in-person” and “webinar” participants eligible for CECs
- DEP will email eligible participants a “Link” to a LSRPA webpage with certificate access instructions
- Certificates are issued by the LSRPA after paying a *\$25 processing fee*



CECs: What's the Process?

Since the SRPL Board Has NOT Approved
CECs for the course...

The certificate process will occur AFTER the course
has been approved by the SRPL Board



Test Your Knowledge

Is the temperature outside below 30°?

A. Yes

B. No



Test Your Knowledge

Is the temperature outside below 30°?

B. No



Important Reminders

- **Please mute cell phones**
- **Phone calls / conversations**
 - Please take outside of the meeting room
- **Question/Answers**
 - At times specified during the presentation
 - Please wait for the microphone
 - Webinar participants, wait for question period to “open up” and can then type in question



Remember!



**Remember to sign in and out
for credit**

Please fill out Evaluation Form





**NJDEP Regulatory and Guidance Update
Training
December 12, 2018**

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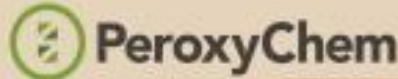


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Upcoming LSRPA Courses & Events

- **December 12, 2018** - Deadline for the NJ Site Remediation Conference - Call for Abstracts
- **December 13, 2018** - Steering Committee Meeting (Open to All LSRPA Members who Register), Parsippany, NJ
- **December 18, 2018** - LSRPA Member Breakfast- Lead Remediation Standards (Blue Swan Diner, Oakhurst, NJ)
- **Jan 29 and 30, 2019** - 2nd Annual NJ Site Remediation Conference, Hyatt, New Brunswick, NJ (24 CECs being offered, including **3 Ethics CECs** that all LSRPs need)

Visit LSRPA.org for details and registration

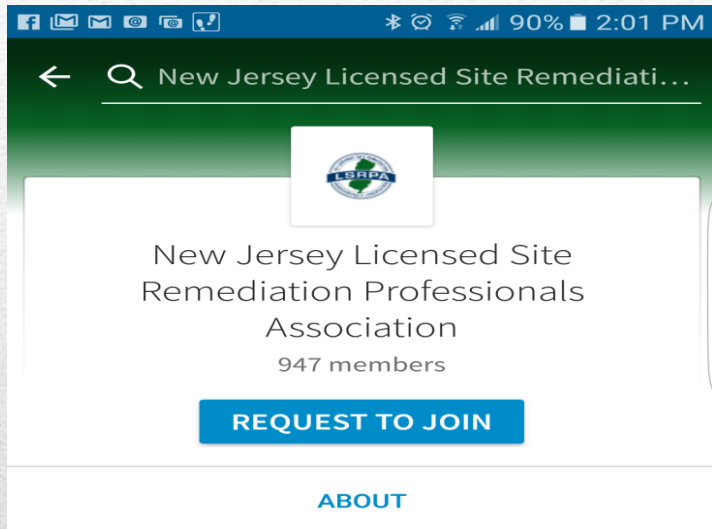


LSRPA Initiatives

- **Member Breakfasts**, held throughout the state: Check lsrpa.org for locations.
- LSRPA Participated in NRD Task Force and the Environmental Justice Task Force
- LSRPA is a Stakeholder in the Upcoming SRRA 2.0 revisions
- Dispute Resolution
- LSRPA Sounding Board
- CE Tracking Spreadsheet Tool

Visit *LSRPA.org* - *Member Services* for details





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SOCIAL MEDIA IS NOT JUST FOR KIDS...

It is an important way to connect our membership with the community



GET INVOLVED !

- **LSRPA Committees**

Governance (incl. Bylaws)

Continuing Education

Membership/Next Generation

Risk Management/Loss Prevention

Mentoring

Regulatory Outreach

Sponsorship

Sounding Board

Communications

College Outreach

Finance

Legal/Legislative

Nominating

SRRA 2.0

Conference

WANTED - VOLUNTEERS





Thank You!



****New** Heating Oil Tank System
Remediation Rules
and
Amendments to Other Site
Remediation Rules**

**Judith Andrejko Esq., Regulatory Officer
Site Remediation and Waste Management Program**



****NEW** N.J.A.C. 7:26F**

Heating Oil Tank System (HOTS) Remediation Rules

Consolidates into one new chapter:

- Requirements for remediating discharges from heating oil tank systems
- Requirements for applying for a grant or loan to help offset the cost of remediation of discharges from heating oil tank systems



Other Site Remediation Rule Amendments

- **N.J.A.C. 7:1E** – Discharge of Petroleum and Other Hazardous Substances (DPHS) Rules
- **N.J.A.C. 7:14A** – New Jersey Pollutant Discharge Elimination System (NJPDES) Rules
- **N.J.A.C. 7:14B** – Underground Storage Tanks (UST) Rules
- **N.J.A.C. 7:26B** – Industrial Site Recovery Act (ISRA) Rules
- **N.J.A.C. 7:26C** – Administrative Requirements for the Remediation of Contaminated Sites (ARRCS)
- **N.J.A.C. 7:26E** – Technical Requirements for Site Remediation



N.J.A.C. 7:1E

Discharges of Petroleum and Other Hazardous Substances (DPHS) Rules

- Amended N.J.A.C. 7:1E-5.7
- For a site with a discharge cleanup and removal (DCR) plan, person responsible for conducting the remediation shall remediate ***EITHER*** pursuant to DCR plan ***OR*** pursuant to ARRCs (N.J.A.C. 7:26C) and the Technical Requirements (N.J.A.C. 7:26E)



N.J.A.C. 7:14A

New Jersey Pollutant Discharge Elimination System (NJPDES) Rules

- Updated definitions to comport with new HOTS Remediation Rules (N.J.A.C. 7:26F)
- Clarified applicability of permit-by-rule to remediations
 - What discharges to ground water qualify for permit-by-rule
 - When permit by rule can be invalidated



N.J.A.C. 7:14B

Underground Storage Tanks (UST) Rules

- Various amendments to comport with HOTS Remediation Rules, N.J.A.C. 7:26F
- In penalties section, added a citation to N.J.A.C. 7:14B-12.4, civil administrative penalties for violations of the rules governing the certification of individuals and business firms
- Owner/operator required to notify Department of investigation of suspected release
- Response Action Outcome (RAO) required applies to a “clean pull”



N.J.A.C. 7:14B UST Rules

- Do not need to retain LSRP and include name in response plan
- Instead, name of “contractor”
 - LSRP
 - Individuals certified pursuant to N.J.A.C. 7:14B-13 or N.J.A.C. 7:14B-16 to address system closure and equipment failure
 - Contractor with hazardous material emergency response capability



N.J.A.C. 7:26B Industrial Site Recovery Act (ISRA) rules

- Owner or operator shall establish remediation funding source within 14 days of Department receipt of remedial action workplan certified by LSRP
- Requirements to obtain a *de minimis* quantity exemption



N.J.A.C. 7:26C

Administrative Requirements for the Remediation of Contaminated Sites (ARRCS)

Definition of "person"

The amended definition of "person" in ARRCS includes, for the purpose of enforcement, a responsible corporate official



N.J.A.C. 7:26C ARRCS

Child Care Centers

Clarified that ARRCS applies to the investigation and remediation of contamination of a site being evaluated for use as a child care center



N.J.A.C. 7:26C ARRCS

Licensed Site Remediation Professionals (LSRPs)

- A new LSRP must be hired:
 - Within **45 days** after the withdrawal of a previous LSRP;
or
 - Within **2 business days** if the case involves an Immediate Environmental Concern (IEC)
- Must also notify DEP of identity of the new LSRP
- **NO** LSRP for remediation of small spills (*less than 100 gallons*) of mineral oil from transformers



N.J.A.C. 7:26C ARRCS

Public Notification

Person responsible for conducting the remediation is required to provide DEP with proof of public notice and outreach:

- Within 14 days after the date that the rules require notice and outreach to be made
- **NOT** by submitting it with the “subsequent remedial phase report,” which may be when the remediation is already complete



N.J.A.C. 7:26C ARRCS

Classification Exception Area (CEA)

- ***Historic Fill*** – Exemption from the annual contaminated media fee
- ***Historically Applied Pesticides (HAP)*** – Expansion of permit exemption for a CEA



N.J.A.C. 7:26C ARRCS

Decreased Penalty Amounts

- Amended the penalty amounts for violations to not exceed the statutory limit of:
 - \$5,000 for a first offense
 - \$10,000 for a second offense
 - \$20,000 maximum
- Amendments are consistent with the penalty cap amount in the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq.



N.J.A.C. 7:26C ARRCS

Cost Recovery

Added procedures for DEP to assess and recover its costs through an administrative order, in addition to a Superior Court action



N.J.A.C. 7:26C ARRCS

Appendices

- Amended Appendix B, Model Deed Notice
- Amended Appendix D, Model RAO



N.J.A.C. 7:26C ARRCS

Timeframes

- Added statutory remediation timeframes for completing the remedial investigation set forth in the Site Remediation Reform Act (SRRA), N.J.S.A. 58:10C-1 et seq.
 - Applicable to discharges that were identified or should have been identified prior to May 7, 1999 (the date of enactment of SRRA)
- The person responsible for conducting the remediation is ***NOT*** eligible for an extension of these specific remediation timeframes



N.J.A.C. 7:26C ARRCS

Financial Assurance

DEP required to release financial assurance when DEP has modified a remedial action permit to reflect the determination by the LSRP that the remedy is protective of public health and safety and the environment without the use of an engineering control



N.J.A.C. 7:26E Technical Requirements for Site Remediation

Ecological Evaluation Requirements

Discharges from an underground storage tank (UST) that stores heating oil:

- for on-site consumption
- in a one-to-four family residential building

are ***EXEMPT*** from ecological evaluation requirements



N.J.A.C. 7:26E Technical Requirements for Site Remediation

- Clarified that IEC requirements apply to both LSRPs and subsurface evaluators
- Updated quality assurance/quality control requirements for sampling



N.J.A.C. 7:26E Technical Requirements for Site Remediation

Environmentally Sensitive Natural Resources

If an ESNR is present, a remedial action (RA) ***MUST*** be implemented if the concentration of any contaminant exceeds an ecological risk-based remediation goal approved by DEP



N.J.A.C. 7:26E Technical Requirements for Site Remediation

Notice Required

- Notice is required prior to implementing the remedial action workplan (RAW)
- DEP intends that there be ***NO*** stoppage of work between the notice and implementing the RAW



N.J.A.C. 7:26E Technical Requirements for Site Remediation

Alternative Fill

- ***MUST*** obtain Department approval ***BEFORE*** bringing material to site when volume exceeds original topography
- Added language at N.J.A.C. 7:26E-1.7 to note that the importation of hazardous waste as fill material is ***NO LONGER*** eligible for a variance



Questions?

Site Remediation website:

www.nj.gov/dep/srp/

Department of Environmental Protection Rules and Regulations website:

www.nj.gov/dep/rules/



The Unregulated Heating Oil Tank (UHOT) Program

December 12, 2018

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What is a UHOT?



Above-ground tanks and underground tanks that contain heating oil for on-site consumption for:

- Residential use, regardless of tank size; or
- Non-residential use that have a capacity of 2,000 gallons or less; and
- Contain No. 2, 4, & 6 oil and kerosene



UHOT Program Objectives

- Allow environmental professionals to investigate/remediate low-risk UHOT cases with limited DEP oversight
- Accelerate DEP review process
- Allow real estate transactions to proceed more quickly
- Allow DEP case managers to focus on high risk sites



Environmental Professionals

A certified Subsurface Evaluator (SSE)

or

A Licensed Site Remediation Professional (LSRP)



NFA or RAO?

- DEP issues UHOT NFA letter whether remediation is conducted by a SSE or an LSRP, with one exception...
- An LSRP may issue an Response Action Outcome (RAO) only when a UHOT is remediated as part of a larger site remediation that contains other AOCs or is an entire site remediation. These remediations must be completed in accordance with ARRCs and the Tech Regs.



Common Administrative Errors

- Incorrect address and/or block and lot
 - Use street address and municipality (not the mailing address)
 - Block and lot can change (please consult current tax database)
- Missing or incorrect DEP Incident Number
 - DEP generates this number from the Hotline call
- \$400 check NOT included



DEP Conducts Audits

- Ensure compliance with DEP regulations and standards
- Triggered by anomalies on the UHOT form, or randomly, at DEP's discretion
- Desk Audits: review of remediation documents
- Field Audits: on-site inspections, independent sampling and analysis
- Random Field Audits: on-site inspections of environmental professionals



UHOT Program Exceptions

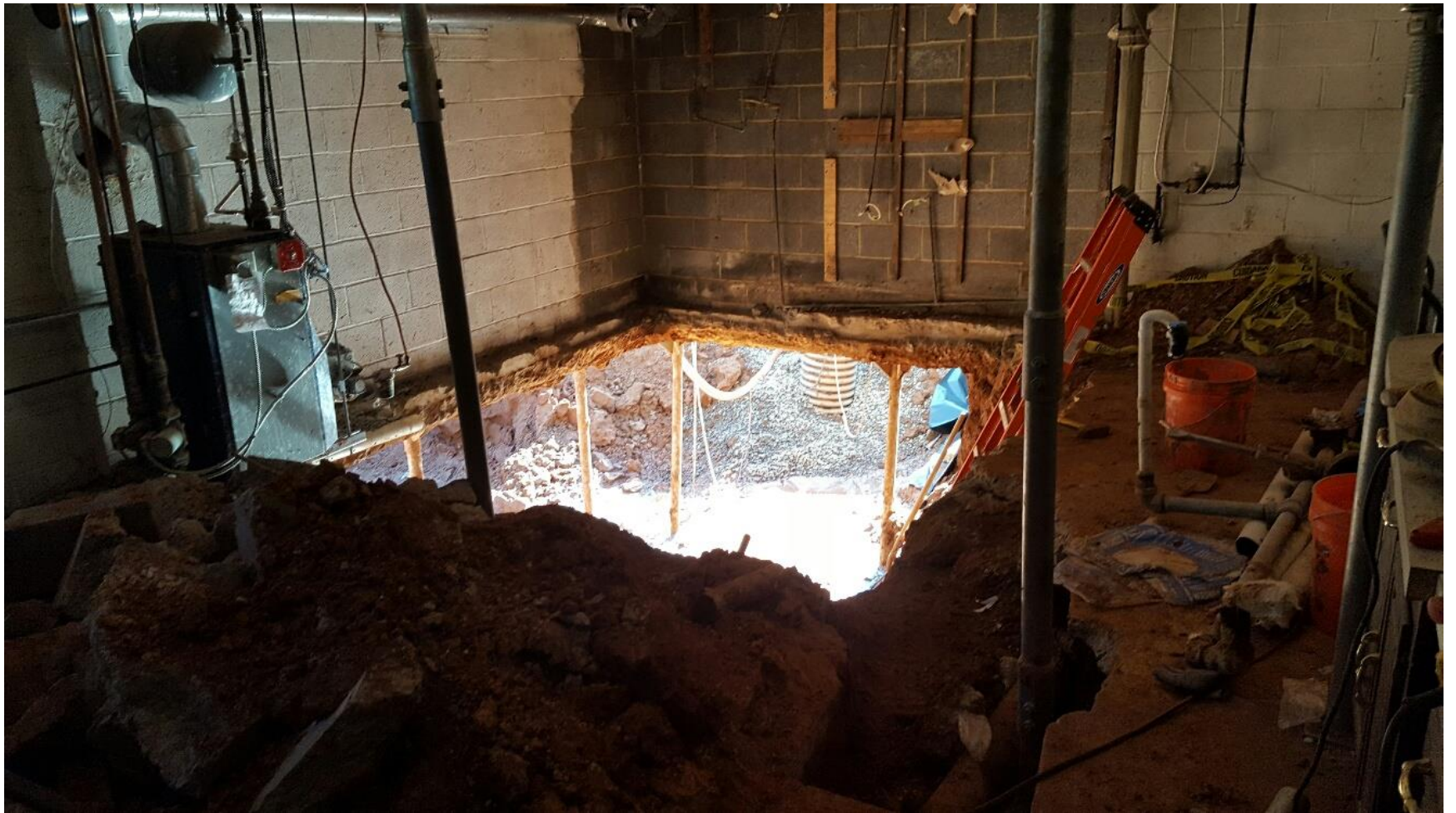
- Immediate Environmental Concern (IEC) conditions will be handled by SRWMP's IEC Unit
 - Vapor Intrusion, Potable Water, Direct Contact
- SRWMP's Field Offices oversee UHOT cases requiring water discharge permits
 - NJPDES Permits by Rule
 - On-Scene Coordinator Discharge Authority
- Surface spills of less than 100 gallons of fuel oil should be called into the DEP HOTLINE



HOTS Remediation Rules







New HOTS Remediation Rules & UHOT Guidance

- As of August 6, 2018 the HOTS Remediation Rules N.J.A.C. 7:26F is in full effect
- All remediations started after August 6, 2018 must comply with the new HOTS Remediation Rules N.J.A.C. 7:26F
- Contains all of the administrative and technical requirements for UHOTs



What is different about the HOTS Remediation Rules?

- More prescriptive rules are aimed at consistency
- Focus is on more timely and less costly cleanups
- Includes detailed sampling and analytical requirements, and EPH soil remediation criterion



What else is different about the HOTS Remediation Rules?

- Contains UHOT- specific regulatory timeframes
- Only timeframe requirement within HOTS Remediation Rule is the remediation of free product pursuant to N.J.A.C. 7:26F-3.2
- Contains specific sampling requirements for both soil and groundwater
- Sampling data is required in applications for UST Fund grants and loans



What else is different about the HOTS Remediation Rules?

- No requirement to submit an LNAPL form
- No requirement to submit a Receptor Evaluation form
- Not subject to mandatory timeframes



****NEW** N.J.A.C. 7:26F**

Residual Contamination – 3 Options: Option 1: Traditional Deed Notice

- For both residential and non-residential properties
- Limited restricted or restricted use with Deed Notice and Soil Remediation Action Permit
- Only LSRPs (no Subsurface Evaluators)
- DEP will issue a Heating Oil Tank System No Further Action Letter (HOTS NFA)



****NEW**** **N.J.A.C. 7:26F**

Residual Contamination – 3 Options: **Option 2: “Deed Notice Lite”**

- For RESIDENTIAL properties only
- Contamination *may* remain only if no threat to public health and safety, or the environment
- Contamination *may* remain under a residential building, a paved area, or a capped easement (such as a sidewalk containing utilities), if removal is impractical or the contaminated soil is inaccessible
- Heating Oil Tank System (HOTS) Model Deed Notice



****NEW** N.J.A.C. 7:26F**

Residual Contamination – 3 Options: Option 3: “Small Quantity Exception”

- For RESIDENTIAL properties only
- Contamination *may* remain only if no threat to public health and safety, or the environment
- Allows less than 15 cubic yards of contaminated soil to remain under a residential building
- Requires DEP approval
- No Deed Notice is necessary



Questions?



Remedial Action Permits Rule Changes

December 12, 2018

Christopher M. Blake
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Remedial Action Permits Parcel Subdivisions

Current Rule:

N.J.A.C. 7:26C-7.5(e)

The permittee shall, within 30 days after municipal subdivision approval for the site that triggers a remedial action permit termination application pursuant to N.J.A.C. 7:26C-7.13(c)...

Former Rule:

The requirement did not exist.



Remedial Action Permits

Current Rule:

N.J.A.C. 7:26C-7.6(c)

The Department shall issue a remedial action permit when a person implements a restricted use remedial action, a limited use restricted remedial action, or any other remedial action that includes an engineering or institutional control if the person responsible for conducting the remediation does not submit an application for a remedial action permit pursuant to this section.

Former Rule:

The requirement did not exist.



Remedial Action Permit Transfer/ Change of Property Ownership

Current Rule:

N.J.A.C. 7:26C-7.11(b)

(b) No later than 60 calendar days after the sale or transfer of the property, transfer of the operation of the property, or termination of a lease, a statutory permittee shall apply for the remedial action permit transfer...

Former Rule:

Within 60 days prior to the sale.

Note: Model Deed Notice currently matches former rule.



Remedial Action Permit Modifications

Current Rule:

N.J.A.C. 7:26C-7.12(b)

(b) A permittee shall apply to have the Department modify a remedial action permit after the person responsible for conducting the remediation modifies the remedial action, including, but not limited to, the occurrence of any of the following...

Note: No timeframe mentioned indicates that a permit modification is required immediately after the remedial action has been modified.

Former Rule:

The 30 day timeframe was removed.



Remedial Action Permit Modifications

Current Rule:

N.J.A.C. 7:26C-7.12(b)1

1. A change in the remedial action pursuant to N.J.A.C. 7:26C-6.4.

Former Rule:

N.J.A.C. 7:26C-7.12(b)1, 2 and 4

1. A determination that the remedial action is not adequately protective...
2. A determination that the size, duration, or contaminants of a ground water classification area, or the frequency and parameters of the ground water monitoring, need to be modified.
4. The person responsible for conducting the remediation modifies the remedial action;...



Remedial Action Permit Modifications

Current Rule:

N.J.A.C. 7:26C-7.12(b)2

2. A modification of the engineering or institutional controls, which will result in changes to the exhibits in the deed notice or in N.J.A.C. 7:26C-7.2(c)2 concerning deed notices; or...

Former Rule:

N.J.A.C. 7:26C-7.12(b)3

3. A person proposes to change the engineering or institutional controls applicable to the site, as described in the notice that complies with the requirements of N.J.A.C. 7:26C-7.2(b) concerning deed notices;...



Remedial Action Permit Modifications

Current Rule:

N.J.A.C. 7:26C-7.12(b)3

3. The permittee changes its address.

Former Rule:

N.J.A.C. 7:26C-7.12(b)6

6. The permittee changes its address.

Note: Citation moved.



Remedial Action Permit Modifications

Current Rule:

The former requirement has been removed.

Former Rule:

N.J.A.C. 7:26C-7.12(b)5

5. A determination that the municipality has revised the lot and block designations of the property...



Model Deed Notice

Current Rule:

Model Deed Notice 7A.iv.(D)

Describes, in the next Remedial Action Protectiveness/Biennial Certification the nature of the temporary alteration, improvement, or disturbance...

Former Rule:

Model Deed Notice 7A.iii.(A)

Notifies the Department of Environmental Protection of the activity by calling the DEP Hotline,...



Questions?



BREAK



NJDEP Vapor Intrusion Technical Guidance: An Update Overview

December 12, 2018

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Evaluation & Risk Assessment**

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Basis for the Presentation



NEW JERSEY DEPARTMENT OF
ENVIRONMENTAL PROTECTION
SITE REMEDIATION AND WASTE
MANAGEMENT PROGRAM



VAPOR INTRUSION TECHNICAL GUIDANCE



January 2018
Version 4.1

<http://www.state.nj.us/dep/srp/guidance/vaporintrusion/>



New Department-Generated Variances

7:26E-1.7(a). Variance Identification form – no longer necessary

- Regarding 7:26E-1.15(g) - The Department no longer utilizes the Health Department Notification
- Submittal of vapor intrusion indoor air data to NJDOH is only required for the specified situations:
 - educational facility
 - child care center

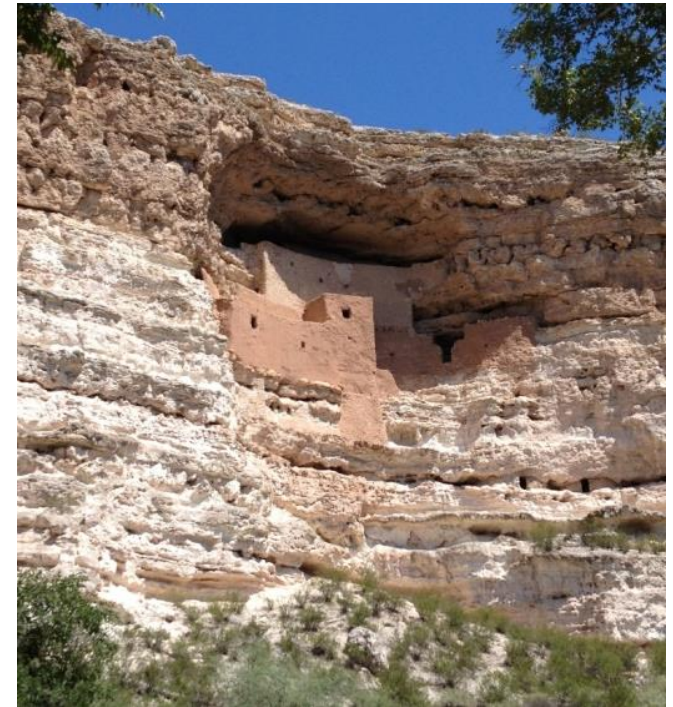
VIT Guidance
Section 1.3

LSRP Still needs a variance as per N.J.A.C. 7:26E-1.7



Unoccupied Buildings & Vacant Land

- Unoccupied buildings must be investigated
- If the pathway is complete, some form of mitigation will be necessary
- Future use is addressed through a GW Classification Exception Area and biennial certification



VIT Guidance
Section 3.5.2



Applying Trigger Distances to GW

Where ground water is the vapor source, trigger distances are applied from the edge of the ground water plume based upon linear extrapolation of GW data



VIT Guidance Section 2.1.1



Sampling & Analysis Issues



- Wet basement or sump: sample the water (VIT Guidance Section 2.1.6)
- If any VOCs detected, conduct VI sampling
- NIOSH Method 6009 for elemental mercury in indoor air samples (VIT Guidance Section 3.5.3)
- Better Defined - near slab and exterior soil gas samples (VIT Guidance Section 3.3)



Building Access for Sampling



- File legal action to obtain access (N.J.S.A. 58:10B-16)
- Choosing not to obtain access does not support a variance for completing a receptor evaluation
- Determination of need for legal access on sites involving numerous properties



VIT Guidance
Section 3.1.2



Timeframe Clock

- Required for a Vapor Concern (VC) [7:26E-1.15(e)] or Immediate Environmental Concern (IEC) [7:26E-1.11(a)] conditions
- The condition is identified using the “identification date”



- The timeframe clock starts with the identification of the VC/IEC

VIT Guidance Section 3.1.3



Indeterminate VI Pathway Status

Is defined as:



A building that triggers a VI investigation where the completeness of the VI pathway is not resolved.

VIT Guidance
Section 3.5.2



Indeterminate VI Pathway Status

Insert this Language:

VIT Guidance sections 3.5.2 & 3.9

As recommended by the NJDEP Vapor Intrusion Technical Guidance, indoor air samples were not collected at *(fill in name/address of specific building)* due to operational use, handling or storage of the investigative COC within the building *(insert alternative language if appropriate based on site-specific circumstances)*. Thus, the VI pathway at this building is "indeterminate." Unless otherwise dictated by permit requirements, annual inspections of this building are necessary to identify any change in use. A change in use necessitates the prompt completion of the VI investigation consistent with N.J.A.C. 7:26E-1.15.



Indeterminate VI Pathway Status

Relevant NJDEP forms are being modified to incorporate the Indeterminate VI Pathway status for buildings:

- Classification Exception Area/Well Restriction Area Fact Sheet Form – **Modification Posted**
- Receptor Evaluation Form – **Modification Pending**
- Remedial Action Protectiveness/Biennial Certification Form – **Modification Pending**
- Remedial Action Permit Application Forms – **Next for Modification**



Classification Exception Area

When establishing a CEA, pursuant to N.J.A.C. 7:26E-4.9(a)7 and N.J.A.C. 7:26C-7.3(b)2, “the vapor intrusion pathway must be included in the fate and transport description” for the CEA and “a site-specific evaluation” must be “conducted regarding how changes in property use or conditions above” the CEA “could affect vapors emanating from the plume.”

VIT Guidance Section 4.3.3



Gasoline Additives

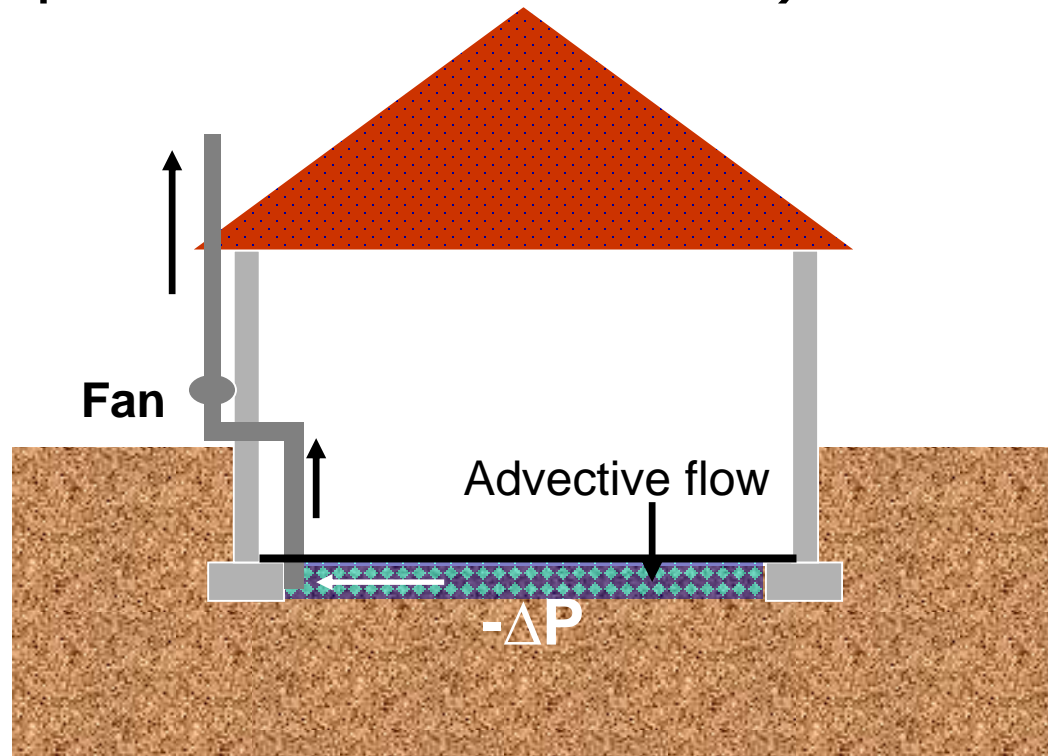
- Such as oxygenates (e.g., methyl tert butyl ether[MTBE]) and lead scavengers (e.g., ethylene bromide [EDB] and 1,2-dichloroethane), are not considered Petroleum Hydrocarbons
- As such, these gasoline additives must utilize the 100-foot investigative trigger distances associated with non-Petroleum Hydrocarbon Compounds

VIT Guidance Section 5.1



VI Mitigation

Active Sub-slab Depressurization Systems rely on fans to create suction (i.e., depressurize sub-slab area)



Active System Measurements

The averaging of pressure differential readings is not acceptable

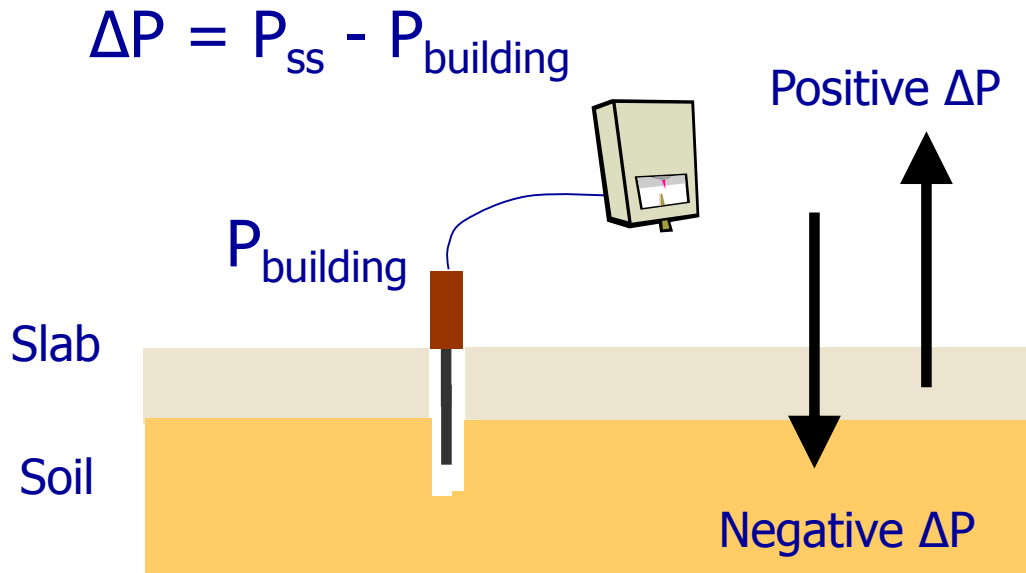


Diagram Source:
Bill Morris, Vapor
Mitigation Sciences

VIT Guidance
Section 6.4.2.4



VI Mitigation Systems Checklists

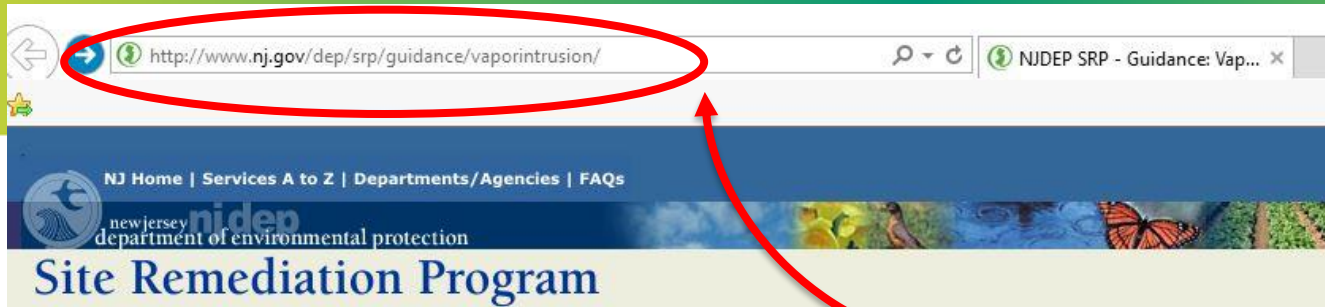


- VI Mitigation System Diagnostic Test & Design Checklist – Appendix J
- Vapor Intrusion Mitigation Monitoring & Maintenance Checklist – Appendix N

http://www.nj.gov/dep/srp/srra/forms/#iec_mm_checklist



NJDEP VI Website



NJ Home | Services A to Z | Departments/Agencies | FAQs

new jersey njdep
department of environmental protection

Site Remediation Program

Guidance Documents > Vapor Intrusion

Vapor Intrusion Pathway

The presence of volatile chemicals in contaminated soil or ground water offers the potential for chemical vapors to migrate through subsurface soils and/or prefer migration of volatile chemicals from the subsurface into overlying buildings. The Vapor Intrusion information linked from this page represent specific guidance dev

[The Vapor Intrusion Technical Guidance](#) Version 4.1, Posted January 2018

It is recommended that the user periodically refer to the NJDEP Vapor Intrusion web site for the latest information on the vapor intrusion pathway.

Vapor Intrusion Technical Information and Updates:

- [Background Levels of Volatile Organic Chemicals in Homes: A Review of Recent Literature](#) Posted August 2016
- [Installation Procedures for Permanent Sub-slab Probes](#) Posted August 2016
- [NJ Dept. of Health VI Data Submission Checklist](#) Posted July 2013
- [Vapor Intrusion Template Letters & Results Tables](#) Posted May 2017
- [VI Screening Levels Comparison Table](#) Posted March 2013
- [Vapor Intrusion Screening Levels](#) Posted March 2013
- [Update to the VI Screening Levels](#) Posted March 2013
- [Summary of VI Screening Level Implementation Strategy](#) Posted March 2013
- [Revised Instructions for the Johnson & Ettlinger Spreadsheets - NJDEP Version](#) Posted September 2016
 - [Changes from the January 2013 Instructions](#) Posted September 2016
- [Important Information about Vapor Mitigation Systems and Power Outages](#) Posted 5 November 2012, Updated 5 March 2018
- [List of Certified Labs](#)



Additional Vapor Intrusion Information

- ▶ [DEP Contacts for Vapor Intrusion](#)
- ▶ [Community Outreach Guidance](#)
- ▶ [Fact Sheet: Evaluating Indoor Air Near VOC Contaminated Sites](#)
- ▶ [Fact Sheet: Subsurface Depressurization Systems](#)
- ▶ [Common Household Sources of Background Indoor Air Contamination](#)
- ▶ [NJDOH's Fact Sheet: Potential Health Risks Associated with Exposures to Trichloroethylene \(TCE\) in the Indoor Air \[pdf\]](#) Posted 1 June 2016

[Help for the file formats](#)

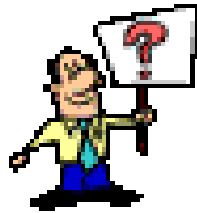
Related Links

- ▶ [SRP Office of Community Relations](#)
- ▶ [NJDEP Office of Quality Assurance](#)
- ▶ [New Analytical Method for Volatile Organics in Air NJDEP-LLTO-15- 3/2007](#)

<https://www.state.nj.us/dep/srp/guidance/vaporintrusion/>



Questions?



Historically Applied Pesticides

December 12, 2018

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HAP Technical Guidance Committee

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Section 2.0 What is HAP?

Historically Applied Pesticide(s)

- Includes arsenic, lead, DDT (and its metabolites, DDE and DDD), dieldrin, aldrin and chlordane
- Persistent in the environment
- Have not been widely used in many years







CITY OF WACO

HEALTH & HYGIENE DEPT.

DDT









What HAP is not...

- HAP is not a historic pesticide mixing area or spill
- HAP is not a new or recent pesticide discharge

Additional information on how to identify areas of concern can be found in the ***Technical Guidance for Site Investigation of Soil, Remedial Investigation of Soil, and Remedial Action Verification Sampling for Soil***, available at:

http://www.nj.gov/dep/srp/guidance/#si_ri_ra_soils



Section 2.0 Clarifications

If sampling results indicate HAP is present and exceeds applicable standards:

- Must remediate (pursuant to N.J.A.C. 7:26C and N.J.A.C. 7:26E)

OR

- May defer remediation at active agricultural or golf courses properties, until property is no longer used for agricultural purposes or as a golf course



Section 2.0 Clarifications (cont'd)

If site use is changing to **school, child care center, residence** or **playground**, HAP must be investigated and remediated using all relevant Regulations and Guidance (pursuant to N.J.A.C. 7:26C and N.J.A.C. 7:26E)



Response Action Outcome (RAO) Notice

Use the RAO notice "Historically Applied Pesticide Not Addressed" for Entire Site RAO when pesticides may have been historically applied at a site but were **not investigated** as part of the remediation

Example: Historical application of pesticides at an industrial facility not investigated



DO NOT USE the RAO Notice

- for RAO-A
- if samples were collected for HAP
- for manufacturing, mixing, or other handling areas
- when there is a change of use to schools, residences, child care centers, and/or playgrounds



Section 4.0

What Remediation Standards to use?

Compare soil sample results to the Residential Direct Contact Soil Remediation Standards (RDCSRS)

NOT

Impact to Ground Water Soil Screening Levels (IGWSSL)

Note: IGWSSLs should only be used when determining if a ground water investigation is recommended



Ground Water Remedial Investigation

A ground water investigation is recommended when:

- Potable wells exist or will be installed at the site;
- HAP exceeds the **IGWSSL** and intersects the water table; or
- HAP are above the RDCSRS within 2-feet of GW table, and not on the immobile chemicals list



Section 4.1 Site Investigation (SI) Sampling

- Clarified where on former golf courses and on former agricultural properties samples should be collected
- Clarified sample depths should be based on original grade
- Expanded the list of analytical parameters to include mercury



Compliance Averaging

Base the horizontal functional area on:

- Patterns in the data
- The configuration of historic crop areas
- No limitations on the shape or size of the functional area (not based on future site use)
- Data from uncontaminated areas should not be included when compliance averaging



Section 5 Deferral Process

- Only for HAP contaminants
- Only at an **ACTIVE** agricultural property or golf course
- Once the use changes then remediation must be conducted for HAP



Section 8.1

Movement of Contaminated Soil

- Added a reference to Section 5, the deferral process for soil that was moved to a part of the property that will remain as active golf course or agricultural use
- Added language about soil which is moved to any other part of the site that will not remain active would require a Deed Notice



Clarification/Change

- **Section 8.3:** Removed “if possible”, clarifying that contaminated soil should not be brought to clean areas to be blended
- **Section 8.7:** Changed the language to state that a Remedial Action Permit for ground water is no longer required pursuant to N.J.A.C. 7:26C-7.3



“Historically Applied Pesticide Not Addressed” RAO Notice

"Please be advised that the remediation that is covered by this Response Action Outcome does not address the remediation of contaminants that may exist from the historical application of pesticides. As a result, any risks to human health presented by the historical application of pesticides may remain. An evaluation of historical pesticides should be completed if there is a land use change to residences, schools, child care centers and playgrounds. This exclusion does not apply if the pesticide contamination is from a discharge due to manufacture, mixing, or other handling of these chemicals and not from application."



Questions?



Capping of Volatile Contaminants for the Impact to Ground Water Pathway

December 12, 2018

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Impact to Ground Water Committee

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Impact to Ground Water Pathway: Basic Assumptions

- To prevent future impact to ground water from remaining vadose zone soil contamination
- Contaminant is assumed to impact ground water via ground water recharge
- This assumption used in our default screening levels and alternative remediation standard calculations



Impact to Ground Water Pathway: Capped Sites (Low permeability caps)

- Little or no ground water recharge
- Partition Equation, Dilution-Attenuation Factor, SPLP, SESOIL, SESOIL/AT123D models all assume ground water recharge



Can contaminants still impact ground water if no groundwater recharge?

- Yes, if there is contaminated soil at the depth of the water table
- Yes, if the water table seasonal high intersects the contaminated zone
- Yes, if a volatile contaminant, because vapors can transport downward to water table via vapor phase diffusion



Preferred Alternatives Before Applying Capping Guidance

- Assume ground water recharge IS occurring and use available tools to calculate alternative remediation standards (Partition Equation, SPLP, SESOIL, immobile chemicals)
- Standards calculated using these other options are unrestricted (no permit, no deed notice)
- Recommend remediation of site to unrestricted standards



Capping Guidance for Metals and Semivolatiles was Issued in 2014

- Metals and semivolatiles generally do not move without ground water recharge – no vapor transport potential
- If have clean zone between contamination and water table, capping feasible
- **Restrictions** – soil permit and deed notice must maintain low permeability cap (forever)

www.nj.gov/srp/guidance/rs



2018 Capping Guidance for Volatile Chemicals

- Compatibility desired with other existing guidance (VI, MNA, CEA, analytical methods, etc.)
- Guidance is applied after active remediation is complete, to address recalcitrant residual contamination (low levels) above IGWSRS
- This option meant to be used for sites that need to be capped, will continue to be capped, or have been capped because of land use



2018 Capping Guidance for Volatile Chemicals

- Low permeability cap needed (i.e.; impermeable to rain water)
- Remove free and residual product (as per N.J.A.C. 7:26E-5.1(e))
- Soil permit required and ground water permit required (if contaminated)
- Cap has to remain until default or site-specific IGW standards are achieved



Approach to follow depends on current status of ground water

- If ground water is uncontaminated, soil vapor sampling is conducted – results compared to to Impact to Ground Water Soil Vapor Screening Levels (IGWSVSLs)
- If ground water contaminated, Monitored Natural Attenuation (MNA) needs to be demonstrated under capped conditions



Ground Water Uncontaminated: IGW Soil Vapor Screening Levels

- Modeling vapor movement through the soil not difficult
- Modeling vapor transfer into the ground water and subsequent dilution in the ground water is more challenging
- Unfortunately, vapor transport into the ground water is the rate-limiting step
- Need something simple and practical



Ground Water Uncontaminated: IGW Soil Vapor Screening Levels

- IGWSVSLs developed using simple equilibrium relationship (Henry's law constant, 13°C) to determine the minimum soil vapor concentration required to theoretically contaminate ground water up to the health-based GWQS
- Conservative, worst-case scenario



Ground Water Uncontaminated: IGW Soil Vapor Screening Levels

- IGWSVSLs are relatively high:
 - Benzene: 530 $\mu\text{g}/\text{m}^3$
 - Tetrachloroethene: 3,100 $\mu\text{g}/\text{m}^3$
 - Trichloroethene: 4,600 $\mu\text{g}/\text{m}^3$
- Compare to VI soil gas screening levels:
 - Benzene: 16 $\mu\text{g}/\text{m}^3$
 - Tetrachloroethene: 470 $\mu\text{g}/\text{m}^3$
 - Trichloroethene: 27 $\mu\text{g}/\text{m}^3$



Ground Water Uncontaminated: Sampling Soil Vapor

- Analytical methods same as for Vapor Intrusion
- Consult Vapor Intrusion Technical Guidance and NJDEP Field Sampling Procedures Manual



Ground Water Uncontaminated: Sampling Soil Vapor

- May sample worst-case location or just above the water table
- Sampling the worst-case location does not necessarily require cap be in place before sampling, but avoid wet conditions after rain
- As per VI guidance, soil vapor samples should be taken at least 5 feet below ground surface, and above the ground water capillary zone



Ground Water Uncontaminated: Sampling Soil Vapor

If sampling just above water table, vertical soil vapor profile needs to be established

- Site should have been capped for 2 years
- Discharge should have occurred >2 years earlier
- Take at least one sample

OR

- Monitor vapor for 2 years after capping to demonstrate achievement of vapor concentrations below IGWSVSLs



Ground Water Uncontaminated: Approval

- Soil vapor concentrations compared to IGWSVSLs
- If below screening levels, may apply for soil remedial action permit
- If not below screening levels, conduct additional investigation
- Cap needs to be maintained until default or site-specific IGW standards have been achieved



Ground Water Contaminated

- Somewhat less stringent, since ground water already contaminated (as per SESOIL/AT123D guidance)
- Temporary, decreasing residual vapor impacts to ground water from vadose zone acceptable



Ground Water Contaminated

- Must have GW Classification Exception Area established with defined (not indeterminate) timeframe
- Must demonstrate that MNA is occurring in ground water while the site is capped
- If site was not capped prior to demonstrating MNA, will need to demonstrate again after capping



Ground Water Contaminated: Vapor Intrusion

Don't forget: If ground water plume is near or under buildings, vapor intrusion could be larger, more urgent concern



Ground Water Contaminated

- If MNA and all required conditions met, can apply for soil and ground water RAPs, which include requirement to maintain cap until default or site-specific IGWSRSs are achieved
- If soil and/or ground water targets not achieved by end of CEA, conduct additional investigation



Volatile Petroleum Hydrocarbons: Special Guidance from VI

- Degradability of these contaminants in vadose zone allow for less stringent requirements, since they are known to degrade to a large extent over short distances
- A 5-foot clean zone between IGW exceedances and WT is adequate for non-NAPL sources; 15-18 feet required for NAPL sources

Reminder: Free and residual product must be removed to extent practicable



Questions?



2018 Guidance Updates

Ecological Evaluation Technical Guidance

August 2018

Version 2.0

December 12, 2018

**Nancy E. Hamill, Bureau of Environmental
Evaluation & Risk Assessment**

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Ecological Evaluation Technical Guidance

August 2018

v. 2.0



Purpose and Importance of Ecological Evaluation Technical Guidance (EETG)

- Purpose: to provide guidance for implementation of N.J.A.C. 7:26E-1.16, 3.6, and 4.8
- No promulgated remediation standards for soil/sediment in Environmentally Sensitive Natural Resources (ESNR)
- Residential/Nonresidential Soil Remediation Standards (SRS) are human health-based; don't apply for protection of ecological receptors
- EETG process determines if remediation needed in ESNR
- Provides data for calculation of site-specific eco risk-based remediation goals



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EETG 2018 Updates

- Section 2.0 – Purpose
- Section 4.0 - Definitions
- Section 5.3.4 - Background Considerations
- Section 6.1.3.3 - Toxicity Reference Values
- Section 6.4.5 - Extractable Petroleum Hydrocarbons
- Section 6.4.9 - Historic Fill



Section 2.0 Purpose

- Site-related **nonhazardous** pollutants discharged to surface water should be addressed, but outside of the EETG process, which focuses on ecotoxic contaminants
- Site Remediation Reform Act includes “pollutant” in the definition of “contaminant”
- NJ Water Pollution Control Act defines pollutants as hazardous and nonhazardous, e.g., solid waste, incinerator residue, garbage, etc.



Section 4.0 Definitions

- “Biotic Zone” – new definition describing depth interval in soil and sediment of highest level of biological activity
- “Sediment” – definition modified to state that all unconsolidated material below a waterbody is sediment for remedial investigation purposes



Section 5.3.4 Background Considerations

- Examine for and remove statistical outliers from background data set
- References added to *Technical Guidance for SI of Soil, RI of Soil, RA Verification Sampling for Soil, March 2015, Section 4.2* and USEPA Pro UCL software and technical guides



Sections 6.1.3.3 Toxicity Reference Values

Background Information

- Toxicity Reference Values (TRVs) are benchmark doses used to characterize risk for upper trophic level wildlife (birds and mammals) in food chain models
- Hazard Quotient (HQ) =
$$\frac{\text{Average Daily Dose (mg contaminant/kg bw/day)}}{\text{Toxicity Reference Value (mg contaminant/kg bw/day)}}$$
- 2015 EETG comprehensive guidance for numerator; lacking for denominator



Sections 6.1.3.3 Toxicity Reference Values (cont'd)

Any of the following three approaches may be used for TRV selection:

1. TRVs from USEPA's *Lower Eight Miles of the Lower Passaic River, Focused Feasibility Study* (Passaic River Project) (2014)
2. TRVs from USEPA's *Ecological Soil Screening Levels* ("ECO-SSLs"), series of documents for individual contaminants
<https://www.epa.gov/sites/production/files/2015-09/documents/eco>
3. TRVs from literature



Sections 6.1.3.3 Toxicity Reference Values (cont'd)

Additional detail

TRVs from the Passaic River Project:

- TRVs for birds and mammals support Superfund Record of Decision for bank-to-bank remedy
- TRVs vetted by State and Federal agencies therefore no further scrutiny during Ecological Component Reviews
- Reference: *Lower Eight Miles of the Lower Passaic River, Focused Feasibility Study Report (2014)* – Appendix D, Table 4-14, www.ourpassaic.org



Summary of TRVs for Avian and Mammalian Wildlife Receptors from the Passaic River FFS, 2014

(a) Units are $\mu\text{g COPEC/g BW-day}$ (dry weight basis).

(b) Benchmarks based on methylmercury exposure

(c) Available at www.ourpassaic.org under "Lower 8 Mile documents, Appendix D, Table 4-14"

COPEC	TRV ^a		Species	Common Name	Endpoint	Reference
	NOAEL	LOAEL				
<i>Birds</i>						
Copper	2.3	4.7	<i>Melagris gallopavo</i>	Domesticated Turkey	growth	Kashani et al., 1986
Lead	0.19	1.9	<i>Coturnix japonica</i>	Japanese Quail	reproduction	Edens and Garlich, 1983
Mercury ^b	0.013	0.026	<i>Anas platyrhynchos</i>	Mallard	reproduction	Heinz, 1974, 1976, 1979
LMW PAHs	0.67	6.7	<i>Agelaius phoeniceus</i>	Red-winged Blackbird	survival	Schafer et al., 1983
HMW PAHs	0.048	0.48	<i>Columba livia</i>	Rock Dove	reproduction	Hough et al., 1983
Dieldrin	0.054	0.18	<i>Numida meleagris</i>	Helmeted Guineafowl	survival	Wiese et al., 1969
Total DDx	0.0090	0.027	<i>Pelecanus occidentalis</i>	Brown Pelican	reproduction	Anderson et al., 1975
Total PCBs	0.40	0.50	<i>Gallus gallus domesticus</i>	Chicken	reproduction	Chapman, 2003
2,3,7,8-TCDD	2.8E-06	2.8E-05	<i>Phasianus colchicus</i>	Ring-necked Pheasant	mortality, growth, reproduction	Nosek et al., 1992a, 1992b
<i>Mammals</i>						
Copper	3.4	6.8	<i>Neovison vison</i>	American Mink	reproduction	Aulerish et al., 1982
Lead	0.71	7.0	<i>Rattus norvegicus</i>	Brown Rat	reproduction	Grant et al., 1980
Mercury ^b	0.016	0.027	<i>Neovison vison</i>	American Mink	growth, reproduction	Wobeser et al., 1976a, 1976b as derived in USEPA, 1995
LMW PAHs	50	150	<i>Rattus norvegicus</i>	Brown Rat	growth	Navarro et al., 1991
HMW PAHs	0.62	3.1	<i>Mus musculus</i>	House Mouse	growth	Culp et al., 2000
Dieldrin	0.015	0.030	<i>Rattus norvegicus</i>	Brown Rat	reproduction	Harr et al., 1970
Total DDx	0.80	4.0	<i>Rattus norvegicus</i>	Brown Rat	reproduction	Fitzhugh, 1948
Total PCBs	0.069	0.082	<i>Neovison vison</i>	American Mink	reproduction	Chapman, 2003
2,3,7,8-TCDD	8.0E-08	2.2E-06	<i>Neovison vison</i>	American Mink	reproduction	Tillitt et al., 1996

Section 6.4.5 Extractable Petroleum Hydrocarbons

- 4000 mg/kg EPH recommended as maximum for soil in Environmentally Sensitive Natural Resources (ESNRs)
- Response to Comments includes 80 literature references that justify 4000 mg/kg EPH value



Section 6.4.9 Co-located Historic Fill & ESNRs

- If Historic Fill (HF) and ESNR are co-located, approach differs from *Historic Fill Material Technical Guidance*, April 2013, for non-ESNRs
- Where HF is in non-ESNRs, can sample pursuant to N.J.A.C.7:26E-2.1 or assume contamination above SRS and implement a remedy such as capping
- Key: Where HF and ESNRs are co-located, data collection is recommended to guide remedial decision-making; should not assume contamination above SRS (don't apply in ESNRs) and should not remediate without data due to potential injury to resource



Section 6.4.9 Co-located Historic Fill & ESNRs (cont'd)

- Pursuant to Brownfields Act, N.J.S.A 58:10B-12h.(1), there is a rebuttable presumption that HF does not require treatment or removal
- The Department may rebut the presumption if engineering or institutional controls would not be effective in protecting public health, safety, and the environment
- Capping remedy in ESNRs may or may not be protective; don't know without data



Section 6.4.9 Co-located Historic Fill & ESNRs (cont'd)

- Data collection and Ecological Evaluation process are recommended to guide remedial decision-making
- If remediation is needed, consider impact to resource from remedial action; an alternative to capping, e.g., hot spot removal may be appropriate, or more rigorous remediation may be needed



Questions?

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Thank You!

And Good Night...

