

VAPOR INTRUSION GUIDANCE: REMEDIAL ACTION



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New Jersey Department of Environmental Protection
Site Remediation and Waste Management



Remedial Action (Chapter 10)

Decision Flow Chart for Vapor Intrusion Pathway

Remediation Decision Matrix - Stage 8

		Indoor Air Concentrations (for COCs)	
		< IASL	>IASL
Sub-Slab Soil Gas Concentrations (for COCs)	<SGSL	No Action	No Action * (if no other subsurface source)
	>SGSL to 10X SGSL	No Action or Monitor	Investigate further or Mitigate
	>10X SGSL	Monitor or Mitigate	Mitigate

Notes:

* Investigator should consider the potential for vadose zone (soil) contamination and/or preferential pathways as part of the assessment of vapor intrusion before concluding "no further action"

Red Decision Points - investigators should use professional judgement when determining which action is appropriate. Factors to consider include the relative exceedance of the screening level, the ratio of the sub-slab soil gas and indoor air results, building construction, and possible affects of background sources of contamination and sampling errors. (Refer to Chapter 7, *Evaluation of Analytical Results*, for more guidance and information.)

Page 4 of 4

Objective: To eliminate the pathway between the source (i.e., groundwater and/or soil contamination) and the receptors.

Primary Goal: Remediate the Source of the Vapor Contamination.



Remedial Action Techniques

- Seal openings and cracks in floors, walls, etc.
- Cover exposed soil and sump pits
- Install a vapor barrier
- Pressurize the building (HVAC)
- Install Soil Vapor Extraction (SVE) System
- Subsurface Depressurization Systems

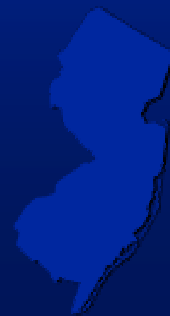
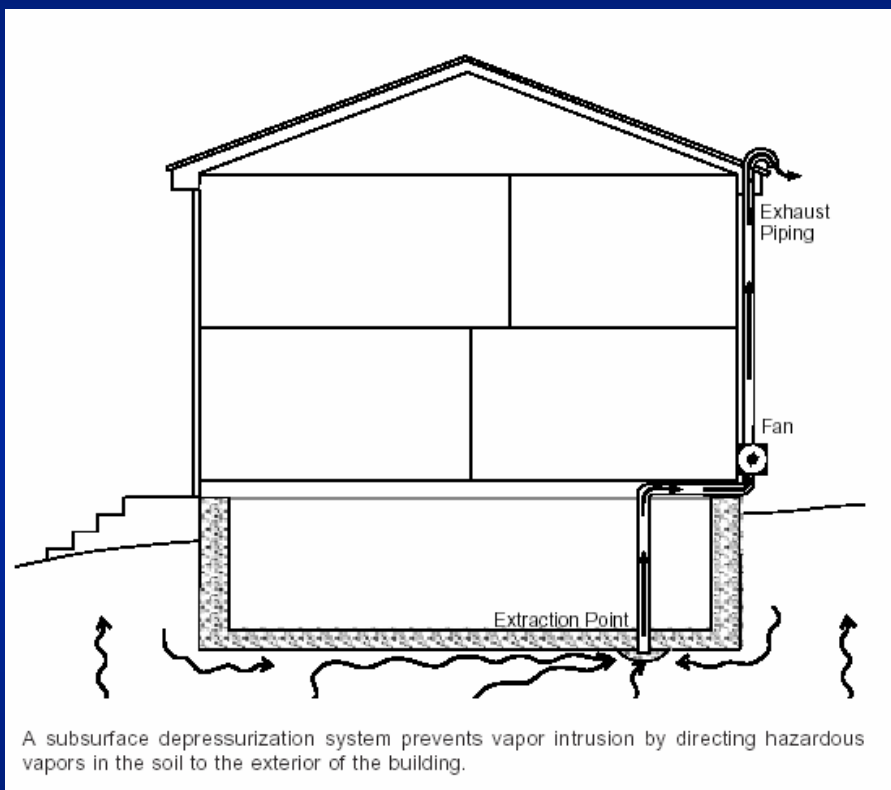


Subsurface Depressurization Systems

- The remediation systems typically utilized in residential homes.
- System design depends on the building's construction.
- Only active systems may be utilized in existing buildings.

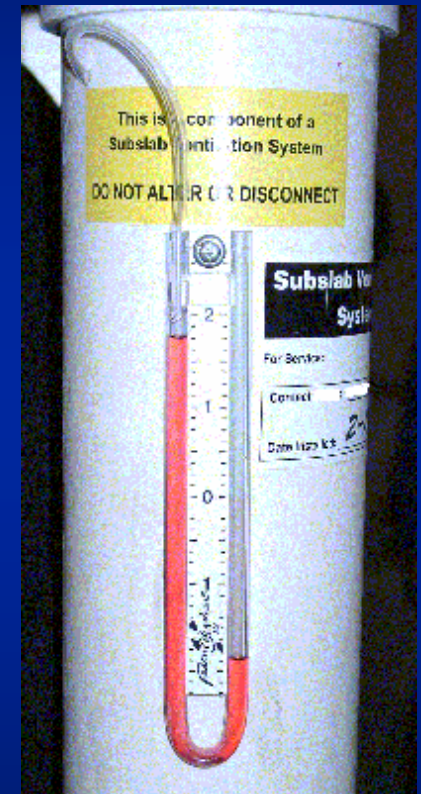


Subsurface Depressurization Systems



Subsurface Depressurization Systems

- Subsurface Depressurization Systems should contain:
 - Pressure Gauge (manometer)
 - Audible Alarm
 - Label w/ purpose of the system, name, address and phone # of the entity to contact for repairs, etc.



Remedial Action Implementation

Qualifications: Consult a NJ Certified Radon Mitigation Business or licensed Professional Engineer for the design, installation, monitoring & maintenance of the remedial system. Certify that remedial system will eliminate/address VI pathway.

Permits: Obtain necessary permits prior to installation of the system.

- An Air Permit is required from NJDEP for use of Depressurization Systems in certain dwellings, contact Regional Air Enforcement Office.



Pre-Construction Considerations

If a property designated for redevelopment has the potential risk for vapor intrusion, proactive remedial measures should be implemented into the design of structure.

- Vapor Barrier
- Vapor Barrier with Passive Depressurization System
- Active Depressurization System



Institutional and Engineering Controls

Not Necessary: For remedial systems provided official notification of the property owner/occupant is provided. Notification requires informing the property owner of the Property Condition Disclosure requirements as per N.J.A.C. 13:45A-29.1.

Seller is required to answer the following per N.J.A.C. 13:45A-29.1:

Question # 78: Have you received any written notification from any public agency or private concern informing you that the property is adversely affected, or may be adversely affected, by a condition that exists on a property in the vicinity of this property? If "yes," attach a copy of any such notice currently in your possession.

Question # 82a: If "yes" to any of the above, were any actions taken to correct the problem? Explain.



Institutional and Engineering Controls

Necessary:

- For undeveloped properties that contain source concentrations above the generic screening levels (GWSL or SGSL), if NFA is requested.
- For sites where the Nonresidential screening levels are used.
- For sites that adjust the building parameters to generate an approved site-specific GWSL.



Verification Sampling

- Sample IA 2-4 weeks after remedial system is operational.
- Generally, 2 rounds of IA samples is necessary (with 1 round during the worst case months of November through March)
EXCEPTION: 1 round acceptable when IA results are an order of magnitude below screening level for COCs.
- System modifications require additional sampling.
- If using a depressurization system verify that a negative pressure extends beneath the structure of concern.



Monitoring & Maintenance

Monitoring & Maintenance Plan required for all Remedial Actions

Monitoring & Maintenance Plan requires:

- Quarterly monitoring to assess effectiveness
- Semi-annual maintenance inspections
- Repairs as needed to maintain effectiveness
- Submit results to NJDEP periodically



Remedial System Termination Sampling

Once the investigator concludes that the VI source has been remediated such that the VI pathway is not complete, a proposal to cease operation of the remedial system may be proposed to the Department.

- Indoor Air and Sub-slab Soil Gas Sampling Recommended

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Questions?

