

## **Instructions for Reporting Vapor Intrusion Testing Results October 2021**

### **Introduction**

Whenever vapor intrusion (VI) testing has been conducted at a private property during the remediation of a contaminated site, the person responsible for conducting the remediation must make certain the property owner, any occupants (i.e. tenants), and local health officer are notified of their results in writing. (The term “person responsible for conducting the remediation” is defined as “any person who is required to remediate by order or regulation, the owner or operator of certain industrial establishments and/or regulated underground storage tanks, any person who discharges or is any way responsible for the discharge of a hazardous substance, or any other person/investigator who is remediating a site, and applies to any entity, including but not limited to a private or public corporation, company, estate, etc.”) A Licensed Site Remediation Professional (LSRP) or other authorized party may send the letters on behalf of the person responsible for conducting the remediation.

At a minimum, the VI testing result letters should consist of a cover letter that summarizes the findings along with a table of the analytical results. The New Jersey Department of Environmental Protection (NJDEP) has developed the following template letters and tables to notify property owners, occupants, and local health officers of VI testing results for three common VI investigation scenarios: sub-slab soil gas testing only, indoor air testing only, and sub-slab soil gas testing performed concurrently with indoor air testing.

Due to the complexity of VI investigations, it is not possible to provide template letters or tables that will address every circumstance. These template letters provide basic outlines for the most common VI investigation scenarios and may need to be modified to address specific situations. For example, the template letters were developed specifically for cases triggered by volatile organic contamination in ground water. Therefore, if the VI investigation was triggered by volatile organic contamination in soil, the first paragraph of the letter will need to be modified accordingly. Also, if near-slab testing was conducted instead of sub-slab testing, you will need to do a word search for “sub-slab” and replace it with “near-slab” where appropriate.

**It is important to note that use of these template letters and tables is optional. If you choose to use your own cover letters and/or tables, the information must be expressed in terms that are understandable to the layperson. The cover letter should clearly summarize the sampling results for the property owner/occupant and discuss the next steps. Furthermore, if site-related contaminant vapors are detected, the information conveyed to the property owner/occupants must accurately describe the source of the contamination and not minimize the urgency to address the VI issues.**

If you have any questions about reporting VI testing results, please contact NJDEP’s Office of Community Relations at (800) 253-5647.

## **Section I - Cover Letters**

*Note: Instructions to the author embedded in each template letter are italicized.*

**Addressee:** The VI sampling results letter should be sent to the property owner. Provide a copy of the letter to any occupant (i.e., tenant) if applicable, and the local health officer.

**Main body of letter:** Choose the appropriate template letter based on the following VI investigation scenarios:

- A) sub-slab soil gas testing only
- B) indoor air testing only
- C) sub-slab soil gas testing performed concurrently with indoor air testing

If A or B applies, completing the letter is straightforward, as all options are presented in the “Results” section of the template letters. (Note: If sub-slab soil gas testing was conducted concurrently with indoor air testing but the indoor air samples were not analyzed based on the results of the sub-slab soil gas samples, use Template A. Also, the “indoor air testing only” results letter (Template B) may include statements regarding prior sub-slab testing, if conducted.)

If C applies, refer to the chart below to complete the “Results” section of the letter. The chart is based on the decision matrix located in Appendix A of the Vapor Intrusion Technical Guidance (VIT) (May 2021). The four options are listed in the template letter; simply identify the appropriate option based on the sub-slab soil gas and indoor air sampling results for the contaminants of concern. Option 4, “Investigate Further,” is also available if the VI pathway is uncertain. The investigator should consider the potential for vadose zone (soil) contamination and/or preferential pathways as part of the assessment of VI before concluding that “no further action” is appropriate.

Sampling Results	<IARS	>IARS
< SGSL	Option 1	Option 1
>SGSL to 10x SGSL	Option 2	Option 3
>10x SGSL	Option 2 or 3	Option 3

**IARS** – Indoor Air Remediation Standard    **SGSL** – Soil Gas Screening Level

Please note that ambient air results are generally not discussed in the cover letter; however, it may be necessary to discuss the ambient air results as it relates to multiple lines of evidence and background sources of air contamination (i.e., if the sub-slab soil gas results are below NJDEP’s screening levels but the indoor air results are above NJDEP’s remediation standards).

**Closing paragraph:** The closing paragraph should be included in all letters.

Attachments: It is important to note that NJDEP does not recommend providing the laboratory analytical data sheets to property owners as these are often too complicated for the lay person. Please use the template tables provided in Section II. However, you may provide the laboratory data sheets in addition to the prepared tables if the property owner/occupant requests them.

The list of common background sources of indoor air contamination is available in Appendix I of NJDEP's VIT. Include this attachment when one or more of the compounds on this list is detected in the indoor air and believed to be due to a background source.

Copy List: Please limit the number of parties that are copied on the results letters whenever possible. Some property owners may object to having their VI sampling results distributed to local officials or other parties that do not have an explicit "need to know." However, it is usually appropriate to send the local health officer a copy of the letter.

## **Section II – Summary Tables**

NJDEP's recommended residential and nonresidential indoor air and soil gas sampling results template tables are available as downloadable files. To obtain the most current indoor air remediation standards and soil gas screening levels, please be sure to download the tables from the Site Remediation and Waste Management Program's website for each VI sampling event, since these values are updated on a regular basis. These tables and additional VI information and guidance can be found at: <http://www.state.nj.us/dep/srp/guidance/vaporintrusion/>. (Two examples with fictitious data are provided to show how the finished table should appear.)

For consistency and clarity, please adhere to the following guidelines when preparing summary tables:

1. For the initial rounds of sub-slab soil gas and indoor air sampling, the samples should be analyzed for the full TO-15 parameter list and all analytical results that are above the laboratory reporting limit should be reported. For subsequent sampling events, only the site-related contaminants and their degradation products detected above the laboratory reporting limit need to be reported. All contaminants that exceed the applicable remediation standards or screening levels should be presented in bold type and the corresponding cell shaded.
2. Each table should have a title that identifies the name, address, and block/lot of the property where the sample was collected. If the receptor is a childcare or educational facility, please include the facility Program Interest Number (PI #). Additionally, each table should include the case name, address, town, county and the PI # associated with the site, as well as the date (month and year) that the table was created.
3. Each table should have column headings that clearly identify the sample location, sample date and sample type (e.g.: sub-slab, near-slab, indoor air, ambient air).
4. Each table should contain only data associated with a single structure. In situations where multiple stores exist within one structure (such as a strip mall), provide separate tables for each of the individual businesses where sampling was conducted.

5. Each table should contain a column identifying the residential or nonresidential remediation standard/screening level (based on property use) for each listed contaminant. Please note that according to NJDEP's policy, residential remediation standards and screening levels are being applied to residential dwellings, childcare facilities, schools, and other sensitive populations.
6. Samples of the same type collected at the same structure should be reported in the same table (e.g., three indoor air samples collected in a structure).
7. Generally, one outside ambient air sample is collected during every indoor air sampling episode. Include the results of this analysis in a separate column within every indoor air analytical results table.
8. Report compounds that were detected but currently have no corresponding NJDEP soil gas screening level or indoor air remediation standard (i.e., acetone (2-propanone)).
9. Report all values in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) units. Do not report results using parts per billion per unit volume (ppbv) in the summary tables.
10. The person responsible for conducting the remediation/LSRP should appropriately address all quality control issues when reporting results to property owners/occupants. Data qualifiers with the applicable result and a footnote defining the qualifier should be included at the bottom of the table. Commonly used footnotes have been included in the table; additional footnotes may be added as needed. Delete any unnecessary footnotes.

# Sample Table #1

## Indoor Air Sampling Results Summary Table

ABC INDUSTRIES  
123 STRAIGHT LINE AVENUE  
ATLANTIC CITY, ATLANTIC COUNTY  
NJDEP Program Interest (PI) #123456

ABC's Child Care 410 Somewhere Avenue Atlantic City, Atlantic County Block 1; Lot 1 PI# 456789	NJDEP Residential Indoor Air Remediation Standards	Indoor Air Sampling Results Basement Storage Area IA-1	Indoor Air Sampling Results First Floor On Toy Chest IA-2	Ambient Air Sampling Results On Stoop Under Awning AA-1
Chemical	µg/m <sup>3</sup>	November 3-4, 2021	November 3-4, 2021	November 3-4, 2021
Acetone (2-propanone)	NA	83	74	21
Benzene	.64	<b>16</b>	.60	ND
Chloroform	100	26	4.0	ND
Cyclohexane	6,300	ND	41.3	1.3
Ethylbenzene	1.1	<b>1.9</b>	ND	ND
Hexachlorobutadiene	NA	1.0	2.5	2.3
Naphthalene	2.6	2.0	ND	1.0
Methylene chloride	96	3.2	3.0	2.1
Toluene	5,200	5.0	3.8 J	8.7
Tetrachloroethene (PCE)	11	<b>23</b>	<b>12</b>	0.9
Xylenes (total)	100	3.5	ND	4.8

**Notes:**

Only chemicals detected at one or more sample locations above the analytical reporting limits are listed in this table.

All results are in micrograms per cubic meter (µg/m<sup>3</sup>).

J - Estimated value

NA – An indoor air remediation standard is currently not applicable for this chemical.

ND – Not Detected

Bolded and shaded results identify exceedances of the applicable NJDEP indoor air remediation standards.

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## Sample Table #2

### Soil Gas Sampling Results Summary Table

ABC INDUSTRIES  
123 STRAIGHT LINE AVENUE  
ATLANTIC CITY, ATLANTIC COUNTY  
NJDEP Program Interest (PI) #123456

ABC's Child Care  410 Somewhere Avenue Atlantic City, Atlantic County  Block 1; Lot 1 PI# 456789	NJDEP  Residential Soil Gas Screening Levels	Soil Gas Sampling Results Basement Sub-Slab Storage Area SS-1	Soil Gas Sampling Results Basement Sub-Slab Boiler Room SS-2
Chemical	$\mu\text{g}/\text{m}^3$	November 4, 2021	November 4, 2021
Acetone (2-propanone)	NA	622	459
Benzene	18	<b>27</b>	<b>23</b>
2-Butanone (methyl ethyl ketone)	260,000	362	2,300
Chloroform	5,100	27	196
Chloromethane (methyl chloride)	4,700	ND	1.1
Cyclohexane	310,000	20J	23
Ethylbenzene	56	38	<b>74</b>
n-Hexane	36,000	ND	2.3J
Methylene chloride (dichloromethane)	4,800	ND	9.7
Tetrachloroethene (PCE)	540	<b>663</b>	387
Toluene	260,000	12 J	ND

**Notes:**

Only chemicals detected at one or more sample locations above the analytical reporting limits are listed in this table. All results are in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

J - Estimated value

NA - A soil gas screening level is currently not applicable for this chemical.

ND - Not Detected

Bolded and shaded results identify exceedances of the applicable NJDEP soil gas screening levels.

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