NJDEP Technical Guidance Document Review Form

Document: ***Vapor Intrusion Technical Guidance Version 5.0***

Comment Period: ***October 15, 2020 to November 16, 2020***

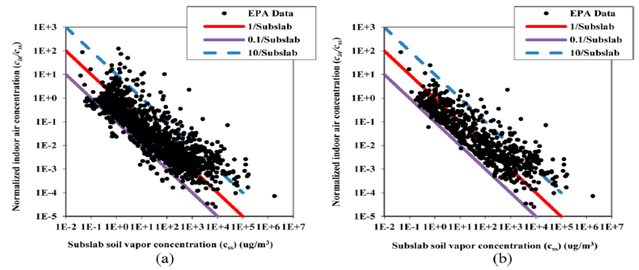
NJDEP Committee Chairperson Carey Compton

Comment #	Page	Section	Subsection	COMMENTS	Responses
				General	
1	General			The Vapor Intrusion Technical Guidance version 5.0 (VITG) is being issued to address the proposed Draft Remediation Standards (Docket 01-20-03), which proposes the establishment of Indoor Air Remediation Standards (IARS) for the first time. The implementation of remediation standards will increase the complexity and technical scrutiny associated with all VI projects. CCNJ/SRIN appreciate the opportunity to review the VITG, however we are disappointed the NJDEP has limited our review and comment of this very important document to the "revised portion of the document only." As presented in our comments there are several details that should be addressed within the VITG that would benefit the public, the NJDEP staff and the regulated community.	The new proposed updates to the Vapor Intrusion Technical (VIT) Guidance (version 5.0) are in response to external stakeholders' requests for the Department to provide additional guidance for the development of alternative remediation standards for indoor air. This additional guidance provided in the VIT updates is intended to supplement the proposed amendments to the Remediation Standards rule (N.J.A.C. 7:26D). Similar guidance updates are also being released for the migration to groundwater, ingestion-dermal, and inhalation exposure pathways for soil. The amount of staff resources required to accomplish these tasks is significant and all technical guidance documents, as well as basis and background documents for the various exposure pathways, are to be released along with the adoption of the Remediation Standards rule. Only comments on the revisions listed in the change log are being accepted and addressed at this time.
2	General			The VITG includes only minor modifications compared to the current version 4.1, January 2018. The current VITG has been used for the past 34 months, thus the regulated community has developed questions, concerns and discrepancies that should be addressed in this new document. The following observations and questions, which have been identified by LSRPs and the regulated community, identify a portion of the comments that would improve the effectiveness of the revised VITG **and are relevant to the indoor air remediation standards.** 4.2.1.3 - The VITG should explain how the ambient air data validity assessment should be conducted. Is this the same as all other data validity assessments or is the NJDEP proposing something special? 4.2.1.3 - The VITG should explain how an elevated ambient air concentration may be presented to the NJDEP and how additional VI investigations should proceed. The VITG simply states "mitigation will not be required when the site specific ambient air results are in excess of the IA results." Will additional investigations be required? Will additional sampling be required? Will "step-out" investigations of the ambient air and indoor air quality be required? 4.2.1.4 - The VITG should explain how the median chemical concentration from the NJDEP background air study will be used as a line-of-evidence in evaluating the IA analytical results when the VITG specifically forbids the subtraction of the background air concentration for site specific samples.	As referenced by the commenters, the Vapor Intrusion Technical (VIT) Guidance document was last updated in January of 2018. These comments are outside the scope of the proposed changes to the VIT. The new proposed updates to the VIT (version 5.0) are in response to external stakeholders' requests for the Department to provide additional guidance for the development of alternative remediation standards for indoor air. This additional guidance provided in the VIT updates is intended to supplement the proposed amendments to the Remediation Standards rule (N.J.A.C. 7:26D). Similar guidance updates are also being released for the migration to groundwater, ingestion-dermal, and inhalation exposure pathways for soil. The amount of staff resources required to accomplish these tasks is significant and all technical guidance documents, as well as basis and background documents for the various exposure pathways, are to be released along with the adoption of the Remediation Standards rule. Only comments on the revisions listed in the change log are being accepted and addressed. These comments will be considered for future updates to the VIT.

3	General	The VITG includes only minor modifications compared to the current version 4.1, January 2018. The current VITG has been used for the past 34 months, thus the regulated community has developed questions, concerns and discrepancies that should be addressed in this new document. The following observations and questions, which have been identified by LSRPs and the regulated community, identify a portion of the comments that would improve the effectiveness of the revised VITG **and are relevant to the indoor air remediation standards.** 4.2.1.4 - The NJDEP IA study focused on indoor air sampling to determine background levels of VOCs in homes. By definition, any detection of a VOC within the indoor air samples represents background air conditions. The NJDEP should justify why the median concentrations should only represent IA background conditions in New Jersey. What is the rationale for ignoring the upper 50% of the data set? The USEPA has established guidelines on the determination and evaluation of background contaminants which generally utilize an upper tolerance limit for the background concentrations and not the median value, which is arbitrarily determined by the number of samples that are included. 6.4.2.3 - The VITG should provide guidance on how to evaluate a malfunctioning passive VI mitigation system given that most passive systems involve a membrane/liner system only.	As referenced by the commenters, the Vapor Intrusion Technical (VIT) Guidance document was last updated in January of 2018. These comments are outside the scope of the proposed changes to the VIT. The new proposed updates to the VIT (version 5.0) are in response to external stakeholders' requests for the Department to provide additional guidance for the development of alternative remediation standards for indoor air. This additional guidance provided in the VIT updates is intended to supplement the proposed amendments to the Remediation Standards rule (N.J.A.C. 7:26D). Similar guidance updates are also being released for the migration to groundwater, ingestion-dermal, and inhalation exposure pathways for soil. The amount of staff resources required to accomplish these tasks is significant and all technical guidance documents, as well as basis and background documents for the various exposure pathways, are to be released along with the adoption of the Remediation Standards rule. Only comments on the revisions listed in the change log are being accepted and addressed.
4	General	The NJDEP fails to identify the specific legal authority under which the adoption of new indoor air remediation standards is authorized. The document references four statutes (i.e. N.J.S.A.13:1D 1 et seq., 58:10 23.11a et seq., 58:10A 1 et seq., and 58:10B 1 et seq.) as the alleged source of the Department's authority, but none of these statutes grant the Department the specific authority to establish indoor air remediation standards. For example, N.J.S.A. 58:10B 1, et seq. is the Brownfield and Contaminated Site Remediation Act (the "Brownfields Act"). The Brownfields Act grants express statutory authority to the NJDEP to "adopt minimum remediation standards for soil, groundwater, and surface water quality necessary for the remediation of contamination of real property." (N.J.S.A. 58:10B 12(a)). This statutory provision further requires the Department to "develop minimum remediation standards for soil, groundwater, and surface water intended to be protective of public health and safety taking into account the provisions of this section." It is unclear why the Department feels compelled to unduly expand its authority to promulgate indoor air remediation standards, particularly when the Proposed Amendments lack justification or quantification of a reduction of risk to public health or the environment.	This comment is outside the scope of the Vapor Intrusion Technical (VIT) Guidance. The Department's authority under the New Jersey Brownfield and Contaminated Site Remedaition Act (N.J.S.A. 58:10B-12) to codify indoor air screening levels into indoor air remediation standards was addressed by the Department as part of the Department's responses to public comments on the Remediation Standards amendments (N.J.A.C. 7:26D).
5	General	The VITG is being issued to address the proposed Draft Remediation Standards (Docket 01-20-03), which proposes the establishment of IARS for the first time. Within the proposed rules, the NJDEP committed to "amending existing technical guidance and developing new technical guidance documents to assist the regulated community in applying the remediation at contaminated sites." (Overview statement) The VITG fails to provide guidance to the regulated community regarding the detection of very low chemical concentrations within indoor air samples with subsequent remediation standard exceedances creating vapor concern (VC) conditions. The following points identify specific details that should be included within the revised document to assist the Public, the NJDEP staff and the regulated community to effectively manage environmental projects while protecting human health and the environment.	This overview comment is addressed in the responses to comments 6 and 7 below.

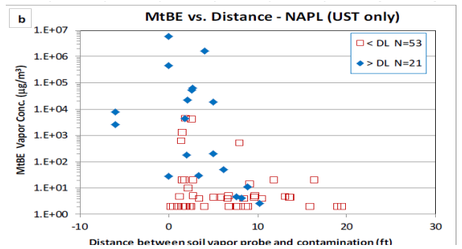
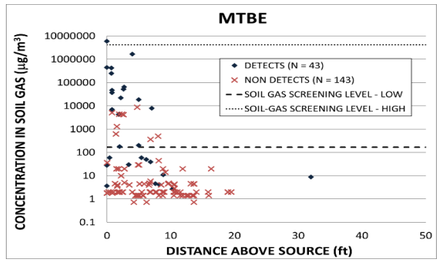
6	General	The proposed IARS for ten (10) compounds will be equal to their individual detection limits including very commonly used chemicals (Benzene, Carbon tetrachloride, 1,2-Dibromoethane (Ethylene dibromide), 1,2-Dichloropropane, 1,3-Dichloropropene (total), 1,4-Dioxane, Mercury (elemental), Naphthalene, 1,2,4-Trichlorobenzene, Trichloroethene (TCE)). For these 10 compounds, the indoor air analysis will focus on a Presence or Absence chemical evaluation while any detection will impose a VC condition (N.J.A.C. 7:26E-1.15(e)6) on the site. The NJDEP should recognize that the detection of any chemicals within the IA space of a home is very stressful for all parties including the residents, the property owners, the responsible parties, the LSRP and the NJDEP staff. The NJDEP should provide specific guidance detailing the Lines of Evidence techniques and alternatives that will be quickly accepted by the Department to define the fraction of the detected chemicals associated with background conditions and the remaining fraction of chemicals that may be caused by VI. The Draft VITG only states "ambient air results" cannot be subtracted from the analytical results; however additional guidance is necessary when a VC condition is encountered, especially for the common chemicals with IARS equal to their detection limits. In addition, the NJDEP should recognize that Petroleum Vapor chemical differentiation (fingerprinting) is much more difficult than Chlorinated VOC Vapor differentiation. Given the ubiquitous nature of refined petroleum compounds, multiple unsubstantiated VC cases will be needlessly generated without the intervention of reasonable scientific theories.	The commenters expressed concern regarding ten contaminants that had residential indoor air remediation standards set at the analytical reporting limit and two contaminants that had nonresidential indoor air remediation standards set at the analytical reporting limit. The basis for the Department establishing the indoor air remediation standards at the reporting limit for the ten affected contaminants is because the calculated human health-based criteria are below the analytical reporting limits and unable to be reliably quantified. Using the greater of the health-based criterion or analytical reporting limit, or regional natural background, is the procedure the Department uses to set the Department's remediation standards for soil and indoor air. Pursuant to the New Jersey Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10B-12), the Department is mandated to employ a health-based approach when developing remediation standards. Background Air Evaluations are a part of a Vapor Intrusion (VI) investigation that is iterative in nature, as discussed in the Department's Vapor Intrusion Technical Guidance (VIT) document. The Department recognizes that the effects of background sources on the overall indoor air quality can complicate a VI investigation. Therefore, indoor air sampling to assess whether the vapor intrusion exposure pathway is complete, is the last step in the evaluation of the vapor intrusion pathway and should only be conducted if there is an exceedance of ground water screening levels and soil gas screening levels. Background sources refers to any contaminants not directly resulting from subsurface VI and related to a regulated discharge. To aid in the identification of background sources, a list of common background indoor air sources can be found in Appendix I of the VIT. The investigator must be cognizant of the high variability of contaminant types and contaminant concentrations at a site. Contaminants associated with background sources, such as smoking and dry-cleaned clothes, can impact the results of a VI investigation if not removed prior to conducting the indoor air sampling, as part of the VI sampling event, which includes the collection of ambient air, soil gas air, and indoor air samples. In addition, when background sources of indoor air contamination are identified and removed from a building, it would be prudent to ventilate the rooms affected in advance of the sampling event to minimize the potential interferences from background sources. Ventilation should be terminated at least 24 hours before commencement of the indoor air sampling event to allow ventilation to return to normal operating conditions. In accordance with the VIT, and pursuant to N.J.A.C. 7:26E-1.15(c), the initial round of the VI investigation shall be completed within 150 days after determining the need to conduct the investigation. As part of the initial VI sampling round, the investigator shall conduct the following: investigate the VI pathway, evaluate the results of the VI investigation using the multiple lines of evidence (MLE), and determine if the VI pathway is complete for each building being investigated. Concurrent with the VI investigation, delineation of the ground water contamination should be implemented and up to date. If the VI trigger is not ground water contamination, then the source may be soil, soil gas contamination, or vapor cloud, that needs identification to properly delineate the source. It is appropriate to utilize the MLE approach in all phases of a VI investigation, consistent with the Technical Requirements for Site Remediation at N.J.A.C. 7:26E. As part of the multiple lines of evidence approach, it is important to evaluate the concentration gradient between the sub-slab soil gas and indoor air samples when conducting an indoor air sampling event. If concentrations are determined to be much higher in the sub-slab soil gas samples versus the indoor air samples, this line of evidence suggests that a vapor intrusion pathway may be complete; whereas, if the indoor air concentrations were higher than the sub- slab soil gas samples, it is likely that a background source is the cause of the elevated indoor air concentrations. Collection of ambient air samples provides an additional line of evidence as well to assist in determining whether a vapor intrusion pathway is complete. If higher concentrations are detected in ambient air samples, as compared to concentrations in indoor air samples, then it is likely that background sources such as automobile exhaust are more likely the cause for the indoor air exceedances than vapor intrusion. The Department conducted a literature review to determine available information regarding ambient levels of volatile organic compounds (VOCs) in buildings. "Background levels of VOCs in Homes: A Review of Recent Literature" can be found on the Department's vapor intrusion website at https://www.nj.gov/dep/srp/guidance/vaporintrusion/. Representative median indoor air concentrations provided in Table G-4 of this report can be utilized as a line of evidence in evaluating analytical results. However, as referenced by the commenters, the median indoor air concentrations are to be used as a line of evidence and under no circumstances should they be "subtracted" from the analytical results to determine an exceedance of the indoor air remediation standards. In response to the portion of the comment relating to petroleum vapor chemical differentiation (fingerprinting), there is currently no discussion of this topic in the VIT. This comment is outside the scope of the proposed changes to the VIT.

7	General			The VITG includes only minor modifications compared to the current version 4.1, January 2018. A review of the evaluation of the reference list suggests the document does not include recent research regarding VI. Only two of the 46 references have been published in the last 5 years and 65% of the references were published more than 10 years ago. Researchers continue to document the complex interaction of IA with the surrounding environment and subgrade conditions. As an example, researchers for *Strategic Environmental Research and Development Program* (SERDP) have documented indoor air can negatively affect shallow soil conditions beneath a crawl space for weeks after the IA source is removed (SERDP, Project ER-1686, July 2016). The SERDP research is just one example of recent research which expands the understanding of VI complexities. An expanded review of recent research will improve the effectiveness of the VITG for the regulated community and also more effectively support the NJDEP reviewers.	As referenced by the commenters, the Vapor Intrusion Technical (VIT) Guidance document was last updated in January of 2018. This comment is outside the scope of the proposed changes to the VIT. The new proposed updates to the VIT (version 5.0) are in response to external stakeholders' requests for the Department to provide additional guidance for the development of alternative remediation standards for indoor air. This additional guidance provided in the VIT updates is intended to supplement the proposed amendments to the Remediation Standards rule (N.J.A.C. 7:26D). Similar guidance updates are also being released for the migration to groundwater, ingestion-dermal, and inhalation exposure pathways for soil. The amount of staff resources required to accomplish these tasks is significant and all technical guidance documents, as well as basis and background documents for the various exposure pathways, are to be released along with the adoption of the Remediation Standards rule. Only comments on the revisions listed in the change log are being accepted and addressed.
				Specific	
8	12	1	3	The third bullet is difficult to understand and needs to be reworded to provide clear direction to an investigator on what notifications or submittals are expected. The final sentence in the bullet is not necessary since the section is regarding variances and the statement applies to all variances.	Agreed. The third bullet was revised and the final sentence in the bullet was deleted as suggested by the commenter.
9	12	1	3	The fourth bullet can be removed since the 6 August 2018 update of the Technical Rules corrected both issues dealing with 2-methyl-naphthalene and the Table A typo. The remaining information in the fourth bullet is no longer a variance.	Agreed. 2-Methyl naphthalene is no longer on the compound list for NJDEP LLTO-15. Fourth bullet was removed from the VIT.
10	24	3	1.3	The VITG changes the NJDOH reporting policy, but the section should address the short timeframes as mandated by the Tech Regs for "step-out" investigations, especially considering the common chemicals which will trigger a VC condition simply by their detection in IA. The proposed IARS for ten (10) compounds will be equal to their individual detection limits including very commonly used chemicals (Benzene, Carbon tetrachloride, 1,2-Dibromoethane (Ethylene dibromide), 1,2-Dichloropropane, 1,3-Dichloropropene (total), 1,4-Dioxane, Mercury (elemental), Naphthalene, 1,2,4-Trichlorobenzene, Trichloroethene (TCE)). Any detection of these compounds within an IA sample will trigger a VC condition, which mandates an expanded investigation of all adjacent buildings within 150 days, referred to as a "step-out" investigation. The "step-out" investigation must continue in 150-day increments for the expanded investigation buildings including receipt of laboratory indoor air data, identification of step out structures, evaluation of the structures, finalization of access agreements, investigation of indoor air conditions, performance of indoor air sampling, and receipt of indoor air analytical data. If there is any detection of these 10 compounds, the 150-day "step-out" requirement continues. The VITG should provide a provision to allow the LSRP to provide justification to temporarily stop the 150-day "step-out" requirement while the LSRP evaluates the first indoor air concentrations. The VITG does not allow an ARS for a residential building, but an evaluation of background chemicals is reasonable and should be addressed within an amended VITG.	These comments are outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance.
11	37	3	3.1.4 Table 3.2	Table 3-2, Recommended ***Minimum*** Number of Sub-Slab Soil Gas (SSSG) Samples, has changed greatly without explanation. The VITG states to "**utilize the table below as a minimum number of samples and add additional samples** based on the building-specific features and conditions provide below the table." Within the next paragraph the NJDEP states "Sub-slab sampling requirements cannot be based on area alone.", however Table 3-2 generally mandates one SSSG sample per every 1,670 square feet of building footprint. Table 3-2 and the text are a contradiction. Further, the VITG allows an LSRP to "evaluate the features and use of a building based on professional judgement to determine the number of sub-slab samples." Table 3-2 should not be revised as proposed.	The Department agrees with the commenter and has withdrawn the proposed revisions to Table 3-2. Revisions may be considered in future updates to the Vapor Intrusion Technical (VIT) guidance.

12	37	3	3.1.4 - Table 3.2	Table 3-2, Recommended Minimum Number of Sub-Slab Soil Gas (SSSG) Samples, has changed greatly without explanation. In the current VITG, a 250,00 square feet building will require 8 SSSG samples. Under the proposed VITG the same building would require 33 to 160 samples. This is a 20-fold increase in sample density, without explanation or justification for the change. This will greatly affect project complexity, site disruption and project costs without any large improvement of the knowledge of the site conditions. There is no text describing the reason or rationale for this change. Amending Table 3-2 without any explanation will also affect ongoing remedial investigations. The VITG is silent on how an LSRP should integrate this vastly greater sampling density into an active project with an active sample dataset. At a minimum, the NJDEP should identify the expected phase-in period for the enlarged sample density. Section 3-2 should remain unchanged as the minimum number of SSSG samples. If the NJDEP believes a greater sample density is justified, the VITG should explain the conditions that would justify the greater sample density and allow the LSRP to integrate these concerns into their investigation strategy.	The Department agrees with the commenter and has withdrawn the proposed revisions to Table 3-2. Revisions may be considered in future updates to the Vapor Intrusion Technical (VIT) guidance.
13	37	3	3.1.4- Table 3.2	Please find two embedded articles that are relevant to the comment beginning, Table 3-2. Yao, Y., Shen, R., Pennell, KG, Suuberg, EM, *Examination of the U.S. EPA's Vapor Intrusion Database Based on Models* , Environmental Science and Technology, January 2013, p 1425 -1433. Lahvis, MA, Ettinger, RA, *Improving Risk-Based Screening at Vapor Intrusion Sites in California,* accepted for publication October 2020.	The Department agrees with the commenter and has withdrawn the proposed revisions to Table 3-2. Revisions may be considered in future updates to the Vapor Intrusion Technical (VIT) guidance.
14	37	3	3.1.4 - Table 3.2	Table 3-2, Recommended Minimum Number of Sub-Slab Soil Gas (SSSG) Samples, has increased greatly without technical justification. Recent science has shown that indoor air concentrations are poorly correlated with subsurface vapor concentrations (see plot below and references). Hence, increasing the number of sub-slab soil gas samples at commercial/industrial buildings based simply on the building footprint will not improve VI characterization/screening. In addition, most VI sites will have undergone some initial site characterization to develop a CSM that documents subsurface source (soil/GW) locations and potential pathways (openings/cracks) in the building foundation that should be targeted for subslab sampling. Blanket recommendations to increase the number of subslab locations based solely on the square footage of a building foundation size are thus not technically defensible. The NJDEP should refrain from increasing the number of subslab vapor points at commercial/industrial buildings with large building foundations because they will add little value for VI screening and risk assessment unless there is no information about the location/extent of the subsurface vapor source or locations of cracks/openings in the foundation that would be more susceptible to VI.  Figure 3. Measured subslab-to-indoor air concentration attenuation factor for (a) all contaminants (b) PCE and TCE in EPA's VI database.[2]	The Department agrees with the commenter and has withdrawn the proposed revisions to Table 3-2. Revisions may be considered in future updates to the Vapor Intrusion Technical (VIT) guidance.

15	37	3	Table 3-2	The proposed modifications to Table 3-2 represents a dramatic increase in the minimum number of recommended sub-slab soil gas samples per square footage of building footprint. According to the NJDEP Change Log, these significant revisions are "based on science." However, the "Science" is not identified and should be documented by the NJDEP. This radical change constitutes up to a 4,900% increase in the minimum number of sub-slab soil gas samples. Alternative investigative approaches to assessing sub-slab soil gas conditions should be discussed in the NJDEP VIT Guidance. A change of this magnitude should have triggered a detailed discussion with the Stakeholder VI Guidance Committee prior to this late stage in the document's revision. **The fact that not all members of the Stakeholder VI Guidance Committee even received this draft from the NJDEP is disturbing.** While modifications to the table are worth a consideration, the whole committee should meet to evaluate the merits of these proposed modifications. It is recommended that a virtual meeting be arranged as soon as possible of the entire membership of the Department/Stakeholder VI Guidance Committee to discuss the revisions to the NJDEP VIT Guidance.	The Department agrees with the commenter and has withdrawn the proposed revisions to Table 3-2. Revisions may be considered in future updates to the Vapor Intrusion Technical (VIT) guidance.
16	53	3	9	The removal of "State and…" from before "local health departments" is technically not appropriate. In reality, the NJDOH does require the submission of certain deliverables in situations involving educational facilities and child care centers (as noted in the revisions to Table 3-4). Therefore, "State and ..." should be retained.	The paragraph is for the general majority number of cases. The exceptions are listed as a note to the Table refererenced in the paragraph. The NJDOH does not want any VI data except that for education facilities and child care centers.
17	55	4	2.1.1	"Principal" is properly used in the current VIT Guidance (2018) and should not be changed to "principle."	The Department agrees and will keep the spelling at "principal".
18	74	6	0	Consider adding "For more information on Radon mitigation, contact the NJDEP Radon Program, see NJRADON.org. For more information of remediation standards for radioactive materials, contact the NJDEP Bureau of Environmental Radiation".	The Department websites for radon and radioactive materials were added to the end of Section 6.0.
19	76	6	1.1.6	The proper citation for this discussion on proactive VI mitigation is 7:26E-1.15 since it is specific to the VI pathway. The sentence should read "*The sampling requirements for structures having any proactive VI mitigation system should follow Receptor Evaluation procedures found in N.J.A.C 7:26E-1.15.*"	The commenters are correct. The citation has been corrected to 7:26E-1.15.
20	76	6	1.1.6	The proper citation for this discussion on proactive VI mitigation is 7:26E-1.15 since it is specific to the VI pathway. The sentence should read "The sampling requirements for structures having any proactive VI mitigation system should follow Receptor Evaluation procedures found in N.J.A.C 7:26E-1.15."	
21	76	6	1.1.6	The purpose of the sub-slab soil gas sampling in situations with proactive mitigation is unclear from the discussion in Section 6.1.1.6. Is the intent of this VI sampling to determine if the VI pathway is complete, and thus whether mitigation is required at the building in question? Alternatively, is the VI sampling designed to determine whether the mitigation proactively installed during building construction is effective at cutting off the VI pathway and is considered more of verification sampling? The answer to the question of intent could determine whether commissioning, verification or OM&M is necessary. Thus, the location of the sub-slab soil gas sample collection relative to any vapor barrier could result in different conclusions. Clarification from the NJDEP is necessary.	Section 6.1.1.6 has been modified to address the commenters' concerns.
22	83	6	3.2.5	The word "may" in the first line should be replaced with "shall" be in line with national standards ansi and astm. A visible or audible device "shall" be installed that will indicate if there is a loss in system power or vacuum, depending on…."	The Department disagrees because it is not a requirement. The language should remain as written.
23	90	6	4.2.4	The VIT Guidance states: *"In general, an active SSDS should achieve a pressure differential of at least 0.004 inches of water (1 Pascal) across the entire slab for the mitigation of VI."* If the readings are collected during the heating season under worst case conditions, this is a reasonable value to establish the system is working properly. However, if the readings are collected during warmer outdoor conditions (e.g., summer months), a pressure differential of 0.004 inches of water may be totally inadequate to confirm the VIMS is protective of human health. Language should be included in this section to better clarify the need for establishing worst case conditions when collecting pressure differential readings.	This comment is not in response to the changes proposed by the Department. This comment can be considered in future updates to the Vapor Intrusion Technical (VIT) Guidance.
24	95	6	5.1 - Table 6.1	Table 6-1: For SSDS, the only clear and reliable metric is vacuum under the slab; we suggest making IA sampling optional given the confounding issues from indoor air source.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance.
25	95	6	5.1 - Table 6.1	Table 6-1: For passive system, please explain what an annual inspection of the system should include, and please explain how to check passive systems for malfunctioning, then modify or augment the system.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance.

26	104	Appendix A	**Vapor intrusion triggers** - VI screening levels in soil gas (SGSL) and groundwater are based on an AF of 0.02. There is no technical justification provided for the AF. One can assume that the NJDEP's AF is based on a statistical analysis (i.e. 95th %) of empirical vapor concentration data and that it was supported by the AF = 0.03 determined by USEPA (2012). The derivation of an AF based on empirical vapor concentration data and a 95th % is **fundamentally** flawed because of a) a poor correlation between indoor air and subsurface vapor concentration data (see plots shown earlier from Yao et al. 2013) and (b) the inability to account for the spatiotemporal variabilities using discrete (in time and space) vapor concentration measurements. Indoor air and subsurface vapor concentrations are defined by air flow that is not accounted for or documented by the discrete concentration measurements. AFs must therefore be based on mass flux principles (such as those described in the Johnson and Ettinger 1991 model) or alternative methods, such as the reliability assessment described by the USEPA (2015) and Lahvis and Ettinger. Both the AF derived from the Johnson and Ettinger model using default parameters and the AF resulting from reliability analyses are likely to be closer to 0.001. The use of an overly conservative AF = 0.02 is therefore likely to trigger unnecessary VI assessments that divert limited resources from VI sites posing the greatest risk. The NJDEP is urged to review the latest science (e.g. Lahvis and Ettinger) and base SGSLs based on Johnson and Ettinger modeling rather than an AF = 0.02.	The residential and nonresidential soil gas screening levels were calculated by dividing the applicable indoor air remediation standards human health-based indoor air criteria by an attenuation factor of 0.02. The attenuation factor is the ratio of the indoor air concentration measured in a residence to the vapor concentration measured in the subsurface materials underlying or adjacent to the residence. The USEPA, in its current vapor intrusion guidance (USEPA 2015), recommends an attenuation factor of 0.03, which is drawn from a report on the USEPA Vapor Intrusion Database (USEPA 2012). The Department has conducted its own assessment of the USEPA 2012 and 2015 reports and feels the New Jersey value of 0.02 continues to be satisfactory. The technical justification for the NJDEP subslab attenuation factor is given in the newly released Basis and Background document for the Vapor Intrusion Screening Levels. The NJDEP prefers the use of empirical data over theoretical modeling (such as using the Johnson and Ettinger model) for subslab attenuation factors because this factor is not affected by chemical or soil properties. Rather, the factor is solely controlled by building and weather characteristics, which are highly variable. Empirical data incorporates the overall variability of these two factors. The paper by Yao referenced by the commenter does not discuss the assessment conducted on the USEPA Vapor Intrusion Database described in USEPA (2012), regarding filtering of the data to control for the effect of background concentrations of contaminants. The commenter provided a paper by Lahvis and Ettinger with no provided citation. It appears to be submitted for review or has not yet been published, so the status of this paper is uncertain. In the paper, the authors suggest the use of “reliability assessments”, instead of percentile evaluation, to determine a subslab attenuation factor. A reliability assessment was in fact conducted by the USEPA in its 2015 vapor intrusion guidance, and this supported the percentile-based attenuation factor of 0.03. The paper by Lahvis and Ettinger describes a study specific to California. Because California has significantly different building construction and a much more temperate climate (which tends to reduce the attenuation factor), the attenuation factor referenced in the paper (approximately 0.001) is specific to that state, and does not have bearing in New Jersey. A New Jersey dataset is not available to conduct a separate reliability assessment for the state. However, building types in New Jersey are more aligned with those used in the USEPA study.
27	104	Appendix A	**Vapor intrusion triggers** - The VITG needs to capture the latest science on site screening, in particular for MTBE and the lead scavengers, 1,2 Dichloroethane (1.2 DCA) and 1,2-Dibromomethane (EDB). MTBE has been shown to attenuate in the vadose zone to a greater extent than benzene, on which the screening distances recommended by the NJDEP are based. The attenuation and vertical screening distances for MTBE can be inferred from Plot 1 (USEPA, 2013) and Plot 2 - data from the USEPA PVI database supplemented with additional data from Massachusetts. Hence, the screening distances recommended by the NJDEP are conservative for MTBE. It is also important to recognize that MTBE vapor attenuation is becoming more significant over time because of the removal of MTBE from gasoline (~15 years ago) and the weathering that has taken place since (i.e. screening distances for MTBE are only becoming shorter over time). The lead scavenger 1,2-DCA has also been shown by Kolhatkar et al. (2019) to attenuate below screening levels of concern for vapor intrusion over distances of 15 ft for both LNAPL and dissolved-phase sources The VITG should be revised to account for the application of vertical screening distances at sites with MTBE and 1,2-DCA. Not making this revision will only trigger unnecessary site characterization, increase reliance on IARS, and detract from being able to focus limited resources on locations where the VI pathway is most likely. Kolhatkar, R.V., Lahvis, M.A., Hers, I., Wilson, J.T., Luo, E.H., and P. Jourabchi. 2019. Vertical screening distance criteria to evaluate vapor intrusion risk from 1,2-Dichloroethane (1,2-DCA). Groundwater Monit. Remediation, 38, 41-51.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance. The VIT discusses vapor intrusion triggers and these specific contaminants in Sections 2 and 5, which were not changed in this version of the VIT.

				 	
28	107	Appendix A	Step 4	Mitigation Decision Matrix (Step 4) - The header for the last column (right side) should read "greater than" and not "less than."+H45H45F40H45F40H45F40H45	Agreed. The header in the last column has been changed back to "greater than"
29	109	Appendix B		Receptor Evaluation/PVI Screening/VI Investigation Timeline - The last box at the bottom of the flow chart should more correctly state "*If IA results exceed VI IARS or RALs AND are related to a discharge, move to IEC/VC 7:26E-1.11 or 7:26E-1.15(e)"*	The Department agrees with the commenter and the proposed revisions have been used to update the last box in the flow chart.
30	127	Appendix G		Appendix G provides the derivation and application of the Vapor Intrusion Standards, Screening Levels, and Alternative Values to evaluate and remediate the VI pathway. The VITG states "An indoor air Alternative Remediation Standard (ARS) may be developed on a site-specific basis pursuant to N.J.A.C. 7:26D-8 with Departmental approval required prior to use at a site or AOC. An indoor air ARS cannot be established for a residence, school or childcare facility (N.J.A.C. 7:26D-Appendix 9)." Specifically, Brownfield Act N.J.S.A. 58:10B-12 (f)(1) states "A person performing a remediation of contaminated real property, in lieu of using the established minimum soil remediation standard for either residential use or nonresidential use adopted by the department pursuant to subsection c. of this section, may submit to the department a request to use an ***alternative residential use or nonresidential use soil remediation standard*** ." It is not clear that the Department is authorized to provide an option for a site-specific indoor air alternative remediation standard.	This is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance and was addressed in the Department's responses to public comments on the amendments to the Remediation Standards rule (N.J.A.C. 7:26D).
31	127	Appendix G	0	The location of the numerical IARS and VISLs within the NJDEP VI website is essential information and should be identified in the opening paragraphs. The first time it's mentioned is in Section G.2 (page 131) during a discussion of the VISLs.	Agreed. The link to the IARS and VISL tables has been added to the first sentence of Appendix G.
32	127	App. G	1	IARS Basis and Background documents are not available for review and comment. It is critical for stakeholders to understand how the NJDEP is utilizing the input parameters to calculate the IA standards in order to provide meaningful feedback. By understanding the input parameters, the LSRP and PRCR can develop ARS for their sites. Without the guidelines used by the NJDEP, such ARS are not likely to reach concurrence. We are requesting the release of these documents to be reviewed and commented on appropriately.	The basis and background document for the indoor air remediation standards provides information already contained in the Remediation Standards rule (N.J.A.C. 7:26D). This includes the information necessary to derive indoor air remediation standards, such as equations, default exposure assumptions, and toxicity values. The basis and background document will be released along with the adoption of the Remdiation Standards rule.

33	128	App. G	1.1	The VITG states: "Departmental approval is required prior to implementation of an indoor air ARS. The time required to develop and obtain approval of an indoor air ARS is not a justification for exceeding applicable regulatory and mandatory timeframes, as provided in the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS), N.J.A.C. 7:26C-3, available at http://www.state.nj.us./dep/srp/regs/arrcs/index.html. As a result, the investigator should start the process for approval of an indoor air ARS as early as possible." In this section, the NJDEP recognizes potential time delays however it is not clear that the NJDEP considered the staffing and technical expertise that will be required to address the increased number of sites which may be inaccurately characterized as VC sites due to the very low detection limits. The VITG should include targeted timeframes for NJDEP review of VC conditions and all cases which include background contaminants. The regulated community recognizes complex sites require additional time, however the NJDEP solely controls the time required to receive NJDEP approval for many tasks.	These comments are outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance. The portion of this comment regarding pre-approval of an indoor air ARS is outside the scope of the VIT and was addressed as part of the Department's responses to public comments on the amendments to the Remediation Standards rule (N.J.A.C. 7:26D).
34	128	App. G	1.1	The VITG states: "The investigator may propose an indoor air ARS for the VI pathway at a site or AOC at any time provided sufficient information is available to justify the basis of the indoor air ARS." What "sufficient information" will the Department deem acceptable? The Departments needs to clearly outline what specific information is needed to justify an indoor air ARS at a site or AOC.	N.J.A.C. 7:26D Appendix 9 of the Remediation Standards rule and Appendix G of the Vapor Intrusion Technical (VIT) Guidance detail the procedures and documentation requirements for developing an alternative remediation standard for indoor air and obtaining Departmental approval. If the investigator has questions or concerns, they may also request a technical consultation with the Department.
35	128	App. G	1.1	Although the NJDEP's calculation tool is referenced, a search of the webpage site does not find the calculator. Stakeholders cannot effectively replicate or validate calculations or evaluate the VITG without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator). We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately.	At the time of the commenter's request, the Department had not fully developed the calculator. Once the calculator is fully developed, the Department will release it along with the adopted Remediation Standards rule (N.J.A.C. 7:26D). The Department will accept comments concerning the calculator after the calculator has been released. It should be noted that the commenter requested the calculator to help in evaluating the Vapor Intrusion Technical (VIT) Guidance. The calculator provides a tool to derive an alternative remediation standard; however, the calculator is not needed to evaluate the VIT.
36	129	App. G	1.1.1	The VITG states: "Pursuant to the ARRCS (N.J.A.C. 7:26C-7), the Department shall require the use of an institutional control, engineering control (as needed), and a remedial action permit to ensure that continued use of the indoor air ARS remains valid." Indoor Air Standards are not remediation standards (soil, ground water or surface water) and, therefore, institutional and engineering controls are not applicable in accordance to the Brownfields Act, N.J.S.A. 58:10B 13. Therefore, we request the removal of this requirement.	The amendments to the Remediation Standards rule (N.J.A.C. 7:26D) will turn the indoor air screening levels into indoor air remediation standards. The Department's authority under the New Jersey Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10B-12) to codify indoor air screening levels as indoor air remediation standards was addressed by the Department as part of the Department's responses to public comments on the Remediation Standards amendments. The indoor air remediation standards, pursuant to the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) (N.J.A.C. 7:26C-7) shall require the use of an institutional control, engineering control (as needed), and a remedial action permit to ensure the continued use of the alternative remediation standard for indoor air remains valid.
37	129	App. G	1.1.2	The inability to change default parameters used in calculating the default SRS for residential or non-residential land use, except for physical parameters for the inhalation exposure pathway, significantly limits the use of ARS. The ability to develop ARS on a site/AOC specific basis is a core component of many other state regulatory programs and the USEPA. ARS have been proven to be protective remedial measures and should be further promoted as the NJDEP attempts to address the impacts of climate change. For example, the development of ARS may reduce the need to install engineering controls (caps). Knowing that many of the properties requiring capping are located in urban centers ARS may assist in reducing the "heat island effect", which is an initiative of the USEPA (https://www.epa.gov/heatislands).	This comment is outside the scope of the Vapor Intrusion Technical (VIT) Guidance document and was addressed as part of the Department's responses to public comments on the amendments to the Remediation Standards rule (N.J.A.C. 7:26D).
38	131	App. G	1.2	Within this section (Indoor Air Background Databases), the NJDEP notes that the median concentrations for indoor air sampling in New Jersey are representative of background conditions. With the establishment of IARS equal to the detection limit for 10 compounds, the VITG should expand on the discussion of the acceptable, the preferred and any unacceptable lines of evidence to evaluate the true effect of vapor intrusion verses background/ anthropogenic conditions. The Draft VITG should provide guidance describing how the Indoor Air Background databases identified in section 4.2.1.4 may be used as a LOE and any limitations on the use of these databases when evaluating a VC condition. The proposed VITG identifies the databases, but offers no techniques or methods utilizing the databases. Defining the acceptable and the preferred LOE will provide a more robust and relevant guidance document that can decrease the response time when a VC condition is identified.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance. The investigator should employ soil gas samples, indoor air samples, ambient air samples, the indoor air background database, and other lines of evidence, in combination with professional judgment, to determine whether the vapor intrusion exposure pathway is complete. A technical consultation with the Department is also available upon request.

39	131	App. G	1.2	The VITG states "Pursuant to the Brownfield and Contaminated Site Remediation Act, N.J.S.A. 58:10B-12, whenever a ***site is remediated to a non-residential standard*** , the Department shall require that use of the property be restricted to non-residential and that access to the site be restricted in a manner compatible with the allowable use of the property. Chapter 6 of this document includes information on the use of institutional and engineering controls for the VI pathway." Specifically, Brownfield Act N.J.S.A. 58:10B-12 (c)(1) states "The Department shall develop residential and nonresidential soil remediation standards that are protective of public health and safety...Whenever real property is ***remediated to a nonresidential soil remediation standard*** , except as otherwise provided in paragraph (3) of subsection g. of this section, the department shall require, pursuant to section 36 of P.L.1993, c.139 (C.58:10B-13), that the use of the property be restricted to nonresidential or other uses compatible with the extent of the contamination of the soil and that access to that site be restricted in a manner compatible with the allowable use of that property." Specifically, Brownfield Act N.J.S.A. 58:10B-12 (g)(2) states "Contamination may, upon the department's approval, be left onsite at levels or concentrations that ***exceed the minimum soil remediation standards for residential use if the implementation of institutional or engineering controls*** at that site will result in the protection of public health, safety, and the environment at the health risk standard established in subsections a., b., c. and d. of section 36 of P.L.1993, c.139 (C.58:10B-13), and paragraphs (1) and (10) of this subsection, are met. The department may also require the treatment or removal of contaminated material that would pose an acute health or safety hazard in the event of failure of an engineering control;" Therefore, we recommend the removal of the use of institutional and engineering controls for the VI pathway.	The amendments to the Remediation Standards rule (N.J.A.C. 7:26D) will turn the indoor air screening levels into indoor air remediation standards. The Department's authority under the New Jersey Brownfield and Contaminated Site Remediation Act (N.J.S.A. 58:10B-12) to codify indoor air screening levels as indoor air remediation standards was addressed by the Department as part of the Department's responses to public comments on the Remediation Standards rule amendments. The indoor air remediation standards, pursuant to the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) (N.J.A.C. 7:26C-7) shall require the use of an institutional control, engineering control (as needed), and a remedial action permit to ensure the continued use of the alternative remediation standard for indoor air remains valid.
40	131	App. G	2	The VITG states "Consistent with the development of an indoor air ARS, Alternative Soil Gas Screening Level (SGSL) and Alternative Indoor Air Rapid Action Levels (RAL) are not applicable to residential properties. Alternative SGSL and Alternative Indoor Air RAL may be developed for non-residential properties based on site specific use of a non-residential building and approved indoor air ARS (see Section G.1.1)". Section G1.1 does not state that alternative SGSL and alternative indoor air RAL can be calculated for non-residential properties and what factors can be adjusted for these alternative standards. It is not clear if the "calculator" developed by the NJDEP provides the calculation for the alternative SGSL and alternative indoor air RAL.	Section G.1.1 applies to the development of alternative remediation standards for indoor air only. Section G.2, as referenced by the commenter, applies to the development of alternative vapor intrusion screening levels, which includes alternative soil gas screening levels (SGSL) and alternative rapid action levels (RAL). Altenative SGSL and indoor air RAL may be developed for nonresidential properties based on site-specific use of a nonresidential building and an approved indoor air ARS. The calculator tool to assist in the development of alternative remediation standards for indoor air will also calculate alternative SGSL and indoor air RAL. The calculator will be released along with the adoption of the Remediation Standards rule (N.J.A.C. 7:26D) amendments.
41	135	App. G	2.2 & 2.2.1	The VITG states "The equations, input parameters and procedures used in the development of the SGSL are discussed in the VISL B&B document that can be assessed at http://www.nj.gov/dep/srp/guidance/vaporintrusion." This document is not available for review and comment. It is critical for stakeholders to understand how the NJDEP is utilizing the input parameters to calculate the SGSL and alternative SGSL in order to provide meaningful feedback. By understanding the input parameters, the LSRP and PRCR can develop ARS for their sites. Without the guidelines used by the NJDEP, such ARS are not likely to reach concurrence. We are requesting the release of these documents to be reviewed and commented on appropriately.	The soil gas screening levels and indoor air rapid action levels are developed from the indoor air remediation standard. Those procedures will not change from how there were done when the indoor air remediation standards were screening levels. The amendments to the Remediation Standards rule (N.J.A.C. 7:26D) contains all the information necessary to derive indoor air remediation standards. This includes equations, default exposure assumptions, and toxicity values. The basis and background documents for the indoor air remediation standards and the soil gas screening levels and indoor air rapid action levels will be released along with the adoption of the Remediation Standards rule.
42	135	App. G	2.2.1	The VITG states "A calculator developed by the Department to assist the investigator in the generation of Alternative SGSL can be accessed at http://www.state.nj.us/dep/srp/guidance/rs/index.html." Although the NJDEP's calculation tool is referenced, a search of the webpage site does not find the calculator. Stakeholders cannot effectively replicate or validate calculations or evaluate the guidance document without being able to review the calculator function for Alternative SGSL. We are requesting the release of the calculators for the Alternative SGSL can be reviewed and commented on appropriately.	At the time of the commenter's request, the Department had not fully developed the calculator. Once the calculator is fully developed, the Department will release it with the adopted rule. The Department will accept comments concerning the calculator after the calculator has been released. It should be noted that the commenter requested the calculator to help in evaluating the Vapor Intrusion Technical (VIT) Guidance. The calculator provides a tool to derive an alternative remediation standard or screening level; however, the calculator is not needed to evaluate the VIT.
43	136	App. G	2.2.2	The VITG states "Soil gas results that do not exceed the SGSLs may or may not suggest further investigation." We are requesting NJDEP to clarify why soil gas results that are below SGSLs would warrant further investigation.	Following the statement referenced by the commenter, readers are referred to section 3.3. of the Vapor Intrusion Technical (VIT) Guidance, which goes into details on soil gas sampling and discusses investigative considerations. One example as to why soil gas results below SGSLs may still warrant further investigation is the placement of those samples. Are the soil gas samples taken from the sub-slab or are they near slab soil gas samples? In addition, preferential pathways for vapors also needs to be taken into account.

44	136	App. G	2.3 & 2.3.1	The VITG states "The procedures used in the derivation of the RAL are discussed in the VISL B&B document that can be accessed at https://www.nj.gov/dep/srp/guidance/vaporintrusion/." This document is not available for review and comment. It is critical for stakeholders to understand how the NJDEP is utilizing the input parameters to calculate the Indoor Air RAL and alternative RAL in order to provide meaningful feedback. By understanding the input parameters, the LSRP and PRCR can develop ARS for their sites. Without the guidelines used by the NJDEP, such ARS are not likely to reach concurrence. We are requesting the release of these documents to be reviewed and commented on appropriately.	The soil gas screening levels and indoor air rapid action levels are developed from the indoor air remediation standard. Those procedures will not change from how there were done when the indoor air remediation standards were screening levels. The amendments to the Remediation Standards rule (N.J.A.C. 7:26D) contain all the information necessary to derive indoor air remediation standards. This includes equations, default exposure assumptions, and toxicity values. The basis and background documents for the indoor air remediation standards and the soil gas screening levels and indoor air rapid action levels will be released along with the adoption of the Remediation Standards rule.
45	136	App. G	2.3.2	The Draft VITG should provide guidance regarding the use and reporting of pneumatic testing procedures to evaluate the pneumatic pathway between subslab and indoor air conditions. Defining the acceptable and the preferred LOE will provide a more robust and relevant guidance document that can decrease the response time when a VC condition is identified.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance.
46	136	App. G	2.3.2	The Draft VITG should provide guidance regarding geostatistical techniques which may be used to characterize similarities and differences between indoor air sample results. Defining the acceptable and the preferred LOE will provide a more robust and relevant guidance document that can decrease the response time when a VC condition is identified.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance. There are too many possible exposure scenarios that could occur on a site or area of concern (AOC) and it is not practical to provide an example for every potential scenario in this guidance.
47	136	App. G	2.3.2	The Draft VTG should provide example scenarios that demonstrate when a VC condition is determined to be inaccurate and unsubstantiated. The Draft VTG should define how an LSRP can document an exceedance of an IARS is caused by conditions other than vapor intrusion.	This comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance. Professional judgement, based on a progression of empirical facts, is to be employed when determining if the vapor intrusion exposure pathway is complete.
48	136	App. G	2.3.2	The Draft VTG should provide example scenarios that identify specific actions that are expected by the NJDEP when a VC condition occurs but the site conditions are complex including elevated background air concentrations. We recommend that the NJDEP review the ITRC document, Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios A Supplement to Vapor Intrusion Pathway: A Practical Guideline, January 2007 as a typical format for describing various scenarios and the actions to address the specified conditions. The NJDEP OMM has utilized the current VITG for almost 3 years, and common scenarios, discrepancies and policy decisions should be described within the next VITG. One scenario should clarify the NJDEP's expectations when the IA concentrations exceed the IARS and are also equal to or greater than subslab air concentrations. One scenario should clarify the NJDEP's expectations when the IA concentrations exceed the IARS for compounds that are not detected in subslab air samples. One scenario should clarify the NJDEP's expectations when a remedial action such as the installation of a subslab ventilation system does not reduce all IA concentrations below the IARS. The NJDEP RAP review team and the Monitoring & Maintenance group should also be interviewed to identify other relevant conditions that have been encountered and the minimum information required by these staff members.	The first paragraph of this comment is outside the scope of the proposed changes to the Vapor Intrusion Technical (VIT) Guidance. With respect to the second and third paragraphs of the comment, Section 4.3.7 and Appendix A of the VIT discuss the evaluation and comparison of indoor air and sub-slab soil gas samples and provides technical guidance on the appropriate action (i.e., no action, monitoring, and mitigation). With respect to the fourth paragraph of the comment, Section 6.5.1 provides technical guidance when there are variations in baseline parameters after the installation of a vapor mitigation system. It is incumbent on the investigator's use of professional judgment, based on a progression of empirical facts, for the vapor intrusion investigation and conceptual site model to support the design of any mitigation system and determine the effectiveness pursuant to N.J.A.C. 7:26E-5.2(a). The investigator should consult N.J.A.C. 7:26C-7 for institutional and engineering control requirements and a technical consultation with the Department is also available upon request. With respect to the fifth paragraph of the comment, the Department's Bureau of Remedial Action Permitting (RAP) was not specifically in the VIT committee, which is made up of internal and external stakeholders, but is consulted regularly with respect to vapor intrusion and the Site Remediation and Waste Management Program's (SRWMP) policies. With respect to the Monitoring and Maintenance (M&M), there is no such "group" within SRWMP. However, Section 6.5 of the VIT provides guidance on M&M. Regarding "other relevant conditions", there are too many possible scenarios that could occur on a site or area of concern (AOC) and it is not practical to provide an example for every potential condition in this guidance.
49	136	App. G	2.3.2	The VITG states "A calculator developed by the Department to assist the investigator in the generation of Alternative RAL can be accessed at *http://www.state.nj.us./dep/srp/guidance/rs/index.html* ." Although the NJDEP's calculation tool is referenced 7 times within the VITG, a search of the webpage site does not find the calculator. Stakeholders cannot effectively replicate or validate calculations or evaluate the guidance document without being able to review the calculator function for Alternative RAL. We are requesting the release of the calculators for the Alternative RAL, so the calculator and VITG can be reviewed and commented on appropriately.	At the time of the commenter's request, the Department had not fully developed the calculator. Once the calculator is fully developed, the Department will release it with the adopted Remediation Standards rule (N.J.A.C. 7:26D). The Department will accept comments concerning the calculator after the calculator has been released. It should be noted that the commenter requested the calculator to help in evaluating the Vapor Intrusion Technical (VIT) Guidance. The calculator provides a tool to derive an alternative remediation standard or screening level; however, the calculator is not needed to evaluate the VIT.
50	176	Appendix O		Commissioning Values - By the proposed definition, commissioning values are limited to sub-slab depressurization systems (SSDS) and other forms of active or passive VI mitigation systems (VIMS) do not necessitate the collection of commissioning values. This is contrary to Section 6.4.2 of the VIT Guidance. It is recommended that the definition be modified by replacing "SSDS" with "VI mitigation systems."	Agreed and "SSDS" was changed to "VI mitigation system" in the definintion for commissioning values. The same change was also made on page 94, Section 6.5.1, in the first sentence of the fourth paragraph.

51	180	Appendix O		The definition for tracer gas fails to discuss the nature of a tracer gas - inert, non-flammable, non-toxic, and only has trace presence in the atmosphere. An alternative definition should be selected.	Agreed. A revised definition has been incorporated into Appendix O of the Vapor Intrusion Technical (VIT) Guidance.
52	183	Appendix P		Since the initialism "IVIP" is never used in the VIT Guidance, there doesn't appear to be a reason to include it in the Acronym List.	Agreed. Acronym was removed.