NJDEP Technical Guidance Document Review Form

Document: *Perimeter Air Monitoring Technical Guidance For Sites Undergoing Remediation Version 1.0*

Comment Period: *May 23, 2023 to June 27, 2023*

NJDEP Committee Chairpersons: *Erica Snyder and Allan Motter*

Comment #	Page	Section	Subsection	COMMENTS	RESPONSE
1		ALL		Citations: Throughout this document, citations to regulations or statutes are often placed in parentheses instead of separated by commas, which is the standard format for citations. Parentheses are typically used for abbreviations and acronyms. Using the citations in Section 2.0, below is the correct formatting for various common types of citations: • To inform stakeholders ... where appropriate, (N.J.A.C. 7:26C-1.7) ; • Indented block quote: "An LSRP shall not ..., and experience." (N.J.S.A.58:10C-16(c)) . • In a sentence: This document contains ... Technical Requirements for Site Remediation, (N.J.A.C. 7:26E-5.5(b)7) .	Changes made.
2	Title			Replace "remedial action" in the title with "remediation". As you know "remediation" is defined very broadly to include all phases of remediation. So if any part of this document applies to work done during any phase other than the "remedial action", "remediation is the better choice. Furthermore, per Section 2.0 "[t]he purpose of this document is to provide guidance to evaluate and address potential off-site human exposure to site-related contaminants released to the air from a site undergoing remediation", which suggests that "remediation" is the more appropriate term.	Change made.
3	TOC			Consider adding a "-", ":",or additional spacing (i..e. tab) between the Appendix name and title, e.g. Appendix A - PAM Plan, to improve readability. I think most other tech guidance docs use a tab.	No changes made.

4	General			The draft guidance document's development committee does not appear to have consisted of one air quality expert (either external or internal to DEP) familiar with traditional air dispersion modelling, air measurement techniques, and risk assessments. These areas of air quality science are well established at DEP and have been commonly applied to stationary source permitting for many years. At the very least, it is recommended that the draft guidance documents undergo additional further evaluation and refinement by including qualified individuals of DEP's Division of Air Quality staff in order to build consistency within the programs for monitoring of air pollution. It was not clear from the guidance documents that the draft document package was reviewed by any qualified DEP Division of Air Quality staffers. Internal DEP committee members included vapor intrusion and site remediation experts and researchers, as well as retired members of DEP's site remediation program. The draft guidance document's development committee also appears to have consisted of only four external members – most of which appear to provide ambient air monitoring services. While important to understand "the how" related to perimeter ambient air monitoring contemplated by the draft guidance document, the external committee membership appears to have been heavily reliant upon these ambient air monitoring service providers. It is recommended to expand the guidance committee membership to include external professionals familiar with traditional air dispersion modelling, air measurement techniques, and risk assessments who regularly interact with DEP's Division of Air Quality. Otherwise, we believe DEP's site remediation program is missing an opportunity for streamlining the draft guidance.	The guidance document was developed in consultation with NJDEP's Air Program, and underwent internal review by other programs, including the air program, prior to review by stakeholders. In addition, two PAM committee members are former risk assessor's and dispersion air modelers from DEP's Division of Air Quality. External PAM committee members have expertise beyond ambient air monitoring services and were recommended for the PAM committee when initially assembled due to their strong background and expertise in risk assessment, toxicology, air dispersion modeling, and QA/QC procedures. The document has also been reviewed by external stakeholders.
5	General			The concept of PAM is historically outside of the technical capabilities of an LSRP performing oversight of a site remediation. The implementation of the draft guidance would normally fall to air quality technical experts who are familiar with air dispersion modelling, air measurement techniques, and risk assessments. The LSRP community is typically populated with hydrogeologists, engineers, and scientists who would otherwise be unqualified to perform the air quality work contemplated therein. The draft guidance states the following with respect to this seemingly large technical competency gap: "Investigators who do not have expertise in the design and operation of PAM programs are advised to consult with a qualified professional. LSRPs are reminded that: 'An LSRP shall not provide professional services outside his or her areas of professional competence, unless the LSRP has relied upon the technical assistance of another professional whom the LSRP has reasonably determined to be qualified by education, training, and experience. (N.J.S.A.58:10C-16(c)).'". There is concern that the draft guidance (once finalized) will place an immediate and unfair burden on the LSRP community of professionals as it presents a major new element of the site remediation program. Therefore, the implementation of the draft guidance is recommended to include a longer 1.5 year "phase-in" period versus DEP's proposed 6-month "phase-in" period as referenced by DEP on page 4 of 96 in the draft guidance. This additional "phase-in" period will allow for the adequate DEP-led training of the LSRP and related site remediation professional community, coordination between the LSRP community and air quality professional services community, coordination with supply chain and equipment providers, etc. A 6-month "phase-in" period is simply not sufficient time to coordinate the necessary elements required by the current draft guidance document.	Technical Requirements for Site Remediation (N.J.A.C. 7:26E) -5.5(b)7 has been a requirement for over 10 years (May 7, 2012). This guidance document merely standardizes the process. Therefore, no additional phase-in period is needed.

6	General			It is unclear what the process for submittal, review, and approval of a PAM plan will look like. This creates uncertainty in knowing how much time the process may take. Excessive recycle between DEP and the operator could have repercussions with scheduling and implementation of remediation projects in the state.	Technical consultations for perimeter air monitoring have been ongoing for the past 10+ years and have routinely been conducted quickly. PAM plans do not require preapproval from the Department prior to implementation and are submitted along with the remedial action workplan. All remedial action workplans will go through the inspection and review process. Should there be any issues or need for additional professional judgement, the Bureau of Inspection and Review will reach out to the LSRP to resolve the matter.
7	Global Comment			Consider replacing "project" or "remediation" with "active remediation" or similar. For example, on Page 9, Subsection 5.3, second paragraph, it indicates "...an exposure time (hours per day) estimated for the duration of the **project."** The next sentence indicates "it is important to note that since the use of this guidance pertains to PAM plans with r**emediation activities** of 1 year or less,..." NJAC 7:26E has definitions for remediation and remedial actions that should be used where applicable. Additionally, PAM is important for the active phase of a remedial action where air emissions are generated. The continuation of PAM after the installation of a cap, for example, would not be required as air emissions related to site contamination would not be present.	Given that "active remediation" may be divided among several small areas, each totaling less than 30 days, but the sum totaling greater than 30 days, the term "remediation" will be used.
8	Global Comment			The use of the word "determined" should be reconsidered. Most often the words "confirmed", "calculated", or "assessed" are more accurate.	Consideration was given to changing "determined" in some, but not all, locations in the document.
9	4	1	N/A	Suggest clarifying the media that fall under this guidance e.g., only soil or sediment.. Also provide a list of resources if there are any questions.	This guidance pertains to multiple types of media. In addition to soil and sediment, air sparging for ground water contamination may result in contaminant releases to the air and may require a PAM plan.
10	4	1	N/A	Second paragraph, second line: change "departure" to "deviation" to be consistent with other Tech Guidances and with the Tech Reg language, i.e. vary from regulations, deviate from guidance.	The language in the "Intended Use of Guidance Document" Section is being used consistently across guidance documents and may not be changed at this time.
11	4	1		The second to last paragraph states that this document was reviewed by the SAB at the request of former Commissioner Martin. It's not clear if the SAB reviewed both the original draft version of Technical Guidance or if the SAB also provided comments on this Version 1. Please review and update this paragraph to reflect what review(s) the SAB did and when.	Added date draft PAM guidance was reviewed by the SAB and link to SAB report.
12	5	1		3rd ¶ from the bottom: The quoted text is not actually a true quote because the statute does not use the LSRP abbreviation. I'd suggest leaving the indent and italics but drop the quotes. I'd also drop the parentheses around the citation and make the citation normal type. So along the lines of: An LSRP ... LSRP ... experience." N.J.S.A.58:10C-16(c). If you prefer to keep the quotes, then I suggest editing it as follows (the [ ] indicate replaced text, usually change of capitalization, but I think using it in this situation to indicate that the full term was replace is the common abbreviation would be understood by the readers: An LSRP "shall not ... whom the [LSRP] has reasonably ... experience." N.J.S.A.58:10C-16(c).	Changes made.

13	5	1		2nd ¶ from the bottom: • N.J.A.C.7:26I-6.3(3) does not actually indicate or reference the level of care described in the previous paragraph, it just requires the LSRP to apply the rules, regs, guidance, etc. including (3) or N.J.S.A.58:10C-16(c). N.J.A.C.7:26I-6.3(3) merely states that the LSRP shall follow the IARS. • If your intent is to refence the matching requirement in the Board's rules, that cite is N.J.A.C.7:26I-6.3(e). • The Board's name is: Site Remediation Professionals Licensing Board	Corrected citation to N.J.A.C. 7:26I-6.3(e).
14	5	2	N/A	First paragraph - references demonstration that off-site receptors haven't been impacted. Rest of the document uses "sensitive receptors". Recommend matching that here for consistency.	This statement in the first paragraph is correct as the purpose of the PAM Technical Guidance is to prevent potential exposures to off-site receptors from airborne emissions associated with remedial activities. Sensitive receptors are to be given careful consideration when determining air monitoring instrument placement. Terms have been reviewed throughout guidance to make sure "off-site" and "sensitive" receptor are used appropriately in the document. In addition, "off-site receptor" has been added to the glossary.
15	5	2	N/A	"To inform stakeholders" - Is the intent for there to be changes to public notification requirements? What is the PN requirements for the PAM process and how do they play into the existing PN framework?	This section of the PAM guidance references the notification and public outreach requirements in the Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) at N.J.A.C. 7:26C-1.7. There is no intent to change the notification and public outreach requirements in ARRCS. This section of the PAM guidance is to remind readers of the notification and public outreach requirements contaminated sites are subject to, regardless of whether or not PAM is implemented.
16	5	2	N/A	This section needs to be made clearer so as to define the goals of the guidance document vs. the goals of a PAM program.	Revisions that were determined by the PAM committee to be appropriate were incorporated into Section 2.
17	5	2		Comment is that "Investigators who do not have experience….PAM programs…qualified professionals". Does the Department maintain a list of qualified PAM professionals for practitioners to consider/retain?	No.
18	4 and 6	2 and 3.2	N/A	Suggest including information indicating the need for Worker Health and Safety Plan, appropriate regulations, review process, and how this is addressed in the Perimeter Air Monitoring process.	Health and Safety Plans do not fall under the scope of CSRR's Perimeter Air Monitoring Technical Guidance or the Technical Requirements for Site Remediation, N.J.A.C. 7:26E. This is discussed in Section 4, Applicability and Section 5.6.1, Actions to Address Exceedances of the Real-Time Response Level.

19	5	3	1	The Tech Rule says: "A *perimeter air monitoring and action plan to be implemented during a remedial action, if applicable, designed to monitor and control off-site excursion of dust, vapor and odors*;" there is no definition as to what the plan should contain (as opposed to detailed discussions of what goes in investigation plans). And what is "applicable"? For example, it is assumed that some requirements will be triggered by NESHAPS, but the only mention of NESHAPS in the guidance is for asbestos.	The reason this guidance was developed is to address what is applicable and what should be contained within the PAM plan and report. National Emission Standards for Hazardous Air Pollutants (NESHAP) are stationary source standards for hazardous air pollutants, as defined under the Clean Air Act. Stationary sources under the Clean Air Act are defined as sources of air pollution that include factories, refineries, and power plants. All of these are active commercial/industrial operations. The PAM Technical Guidance does not address these stationary source operations but rather is intended to address air emissions, which may result during remediation of contaminated sites and have the potential to migrate off-site. The Asbestos NESHAP is referenced in the PAM guidance only in the context that the remediation of buildings containing asbestos are covered under the NESHAP. It is not referenced in the context that coverage under the NESHAP equates to applicability to PAM at N.J.A.C. 7:26E-5.5(b)7. The Tech Rule requirement applies to contaminated sites, which under the rule are defined as "all portions of environmental media and any location where contamination is emanating, or which has emanated there from, that contain one or more contaminants at a concentration above any remediation standard or screening criterion". Environmental media includes soil, sediment, air, ground water, and surface water. It does not include building materials.
20	5	3	1	NJAC 7:26E-5.5(b)7 is the only reference in the Tech Regs regarding PAM and states: *"A perimeter air monitoring and action plan to be implemented during a remedial action, if applicable, designed to monitor and control off-site excursion of dust, vapor and odors"*. There is a tremendous amount of specificity in the Draft Guidance without a sufficient foundation in the Tech Regs. As such, this guidance gives the impression of creating Rule through Guidance.	As stated in the comment, N.J.A.C. 7:26E 5.5(b)7 is the only reference in the Technical Requirements for Site Remediation, N.J.A.C. 7:26E to PAM. The PAM Technical Guidance was released to provide guidance to those subject to regulation and its release has been anticipated for many years due to the lack of information. This guidance should be treated like any other guidance. If there is proper justification to deviate from the guidance, a LSRP may elect to do so. This guidance is not regulation, nor is it intended to be.
21	6	3	2	The last sentences in this paragraph are duplicated in intent with the first sentence, third paragraph of section 4.0. Consider eliminating the sentences from 3.2	Agreed. Section 3.2 was removed from the technical guidance since all statements are already mentioned in Sections 1 or 4 of the guidance.
22	6	3	2	The use of PAM plans at non-CSRR sites is beyond the scope and authority of the CSRR site remediation regulations. Comments: Regs and statutes have a scope, not DEP/CSRR. Meanwhile, DEP/CSRR is granted the authority to regulate the site remediation arena by the statutes but I would not say that the statutes or regs have authority themselves. Furthermore, I don't think using CSRR statutes or CSRR regulations is really appropriate, instead consider using "site remediation" or "site remediation related" statutes/regulations. So for this sentence, use I suggest going with either "beyond the scope of the site remediation regulations" or "outside of CSRR's authority".	Section 3.2 was removed from the guidance since Section 1, Intended Use of the Guidance, and Section 2, Purpose, cover these topics more clearly.

23	6	3	2	Additionally, this technical guidance does not apply to address the health and safety of the on-site worker.	Section 3.2 was removed from the guidance. The statement that the PAM technical guidance does not address health and safety plans for the on-site worker is in Section 4, Applicability.
24	6	3	2	The first sentence in this section ("This technical guidance applies to the development and implementation of a Site-specific PAM plan at CSRR sites.") speaks to "applicability" and not a "limitation" and thus belongs in Section 4. The title of Section 3.2 is "Limitations of Tech Guidance Application"	Due to feedback received from several commenters, Section 3.2 was removed from the guidance and the information contained within was merged with Section 1 or 4.
25	6	4	N/A	Suggest providing information regarding contacts in NJDEP for sites where remediation may cover 225 days or more or a link to text where this is discussed.	Section 4 was revised to clarify that the guidance is intended for all PAM plans, including those beyond 225 days.
26	6	4	N/A	Suggest moving the last two sentences of paragraph 1 "Although… projects." to just after the first sentence of paragraph 1. As written, it takes quite a while to figure out where longer remediation projects stand. Better to put it at the top so it's clear to the reader.	
27	6	4	N/A	This section is very confusing. If I understand this section correctly, PAM is required for sites undergoing remediation that take between 20 and 365 days. But, at the same time, PAM is also required for projects undergoing remediation for longer than 365 days. We need a much clearer description of when PAM is required.	
28	6	4	N/A	There is no clear definition of "working day" to qualify the number of working days in a 365-day period (i.e. does 1 hour of activity and 7 hours of non-activity in an 8-hour day constitute 1 "working day"?). It is recommended that a clear definition be provided to ensure that the applicability guidance is correctly applied.	If there is active remediation occurring, then it should be considered a work day, as opposed to a day where no on-site activity is taking place. In response to the comment received, a footnote was added to "working day" in Section 4, Applicability, of the guidance.
29	6	4	N/A	Two criteria presented where PAM is required include where off-site receptors may be impacted by emission-generating activities; however, there is no specification about how far away a receptor can be to no longer be included in the assessment. It is recommended that this shortcoming be addressed prior to final release of the guidance document.	The distance that an off-site receptor can be impacted is dependent on multiple factors, and therefore this determination must be made on a site-specific basis.
30	6	4	N/A	This section of the Guidance **requires** a PAM for remediation activities greater than 20 days and less than 1 year, which is not found in the Tech Regs. **Recommends** would be more appropriate.	The language in the tech regs is as follows: 7:26E-5.5 Remedial action workplan requirements ... (b) The person responsible for conducting the remediation shall include the following in each remedial action workplan for each area of concern: ... 7. A perimeter air monitoring and action plan to be implemented during a remedial action, if applicable, designed to monitor and control off-site excursion of dust, vapor and odors. Therefore, a perimeter air monitoring plan is required for ALL remediation sites with active remediation. The guidance merely limits the scope of this requirement.

31	6	4	N/A	The applicability is defined as remediation activities (as given in the Guidance). How are Linear Construction Projects to be addressed within the context of PAM? The overall LCP may be greater than one year, but are the contaminated site(s) exempt from PAM based on an assumption that activities are less than 20 working days within a 30 day window, even if multiple contaminated sites are located within the LCP?	This will be determined on a case by case basis, dependent on the length of the remediation and if contaminated sites within the Linear Construction Project are within the vicinity of one another. It is recommended that the Department be consulted on these cases to determine if PAM is required.
32	6	4	N/A	The Guidance states "The Department reserves the right at its own discretion to require PAM at a site." Since most Sites are managed by an LSRP without Department oversight, how would this policy be implemented?	This would only apply to sites where the Department is involved in reviewing the remedial action documents. The language in Section 4 has been revised to better clarify this.
33	6	4	N/A	The sentence "However, the Department reserves the right at its own discretion to require PAM" begs the question: how and when will the Department get the opportunity to opine in this manner? At the RAW phase? If so, the DEP does not review RAWs. At the RA phase? If so, how will the DEP get their "bite at the apple?"	
34	6	4	N/A	The sentence that begins "This guidance is intended to protect off-site receptors…." and then goes on to state what it is not intended to do (…"not intended for remedial worker protection…."): the second half of this sentence needs to be moved to section 3.2 because it deals with Limitations. It does not belong in a section titled "applicability" because it is not about applicability, but rather an exclusion.	In response to comments, Section 3.2 was removed from the guidance to avoid duplicative statements. The statement in section 4 referenced by the commenter regarding remedial worker protection will remain in Section 4.
35	6	3&4		Comment: I find the first paragraph of section 4 to be very confusing because: • it's not clear under what circumstances or at what sites the investigator must follow this guidance;; • it's not clear when PAM is required or when the PRCR is required to develop a PAM Plan; and • the discussion of the length remediation activities seems to conflate/confuse when the guidance must be followed and when PAM is required. (Note: If this discussion of length of remediation activities is need, it needs to be made clear that the guidance applies to ALL sites requiring PAM regardless of the length even though the majority of sites following this guidance will fall in the range of 1 year of less). I'm also confused as to why the Limitations of Technical Guidance Application are discussed in §3.2 before Applicability is discussed in §4. Recommendation: The existing §3.2 (or maybe all of §3) and §4 should be consolidated, edited, and reorganized to clearly address the following topics: • The purpose of this guidance (e.g. protect off-site receptors from CoC's emanating from the site) and a explanation of what is beyond the scope of this guidance; • The types of sites or the under what circumstances this guidance is intended to address, i.e. when the investigator must follow this guidance; and • When PAM is required at a site and/or when the PRCR is required to develop a PAM Plan;	Section 4 was revised to clarify when a PAM plan is required and to state that the PAM guidance should be used for all PAM plans, whether they are less than one year or longer. In addition, Section 3.2 was merged with Section 4 as statements in those sections were duplicative.

36	7	5	Fig 5.5	Step 5: mentions schedule for monitoring. Should state daytime vs 24/7.	There is no Figure 5.5 so it is assumed the commenter is referring to Figure 5.1. Additional language on the frequency for real time monitoring was added to Section 5.5.3. to state that real time monitoring should be conducted continuously for the duration of the workday on days when remediation activities are occurring.
37	7	5	N/A	Suggest re-lettering the Appendices so that they are in order. Why is Appendix F the first appendix reference?	CSRR has a technical guidance document development guide and in accordance with that guide, certain appendices (glossary and definitions) are to be at the end. As such, it is sometimes not possible to list appendices in the order they are referenced in the text.
38	7	5		In the first paragraph, Table 5-1 is described as a flow chart illustrating the monitoring plan development steps but the actual Table 5-1 is entitled "PAM Flow Chart". The text and the table should use the same title/description.	Revisions made so that guidance text and the Title for Figure 5-1 are consistent.
39	8	5	1	Potential COCs are identified as VOCs, SVOCs, gases, PM_{10}, mercury and metal fumes, and odor-causing compounds; this is a broad list that can be generally applied. The more broadly DEP applies this list will directly impact the need for increasing resources to monitor and report, even in the absence of any exceedances of the HBTVs. Odor-causing compounds are especially worrisome as these can be identified by DEP for inclusion in the assessment even though they may not present a health hazard. How does DEP plan to address these concerns?	Since PAM occurs during the remedial action workplan stage, the list of COC associated with the site/area of concern should already be established, as well as a CSM. Section 5.3 of the guidance details how to calculate HBTVs and Response Levels, as well as recommendations on which COC to target in PAM when multiple COC exist at the site. Regarding odor concerns, section 5.1 of the guidance states "If the material being remediated has an odor but no adequate toxicity criteria exist, then odor and its control should be addressed separately in the PAM plan from monitoring for hazard or risk-based chemicals in accordance with guidance from the NJDEP Air Quality Program". NJDEP's odor fact sheet can be found at: https://www.nj.gov/dep/enforcement/docs/odor.pdf
40	8	5	1	PM_{10} NAAQS exceedances are included in the potential factors for ranking COCs subject to the PAM Plan. Why was only PM_{10} included, and not $PM_{2.5}$ or CO (and other NAAQS pollutants), in this list?	In 2013 the Department consulted its Science Advisory Board on whether PM2.5 or PM10 should be used for PAM. The SAB recommended that for the purposes of PAM, particulate measurements should be made for PM10 as being more protective and reflective of possible respiratory irritation and upper respiratory tract absorption. In PAM, PM10 is used as a surrogate for contaminant-specific particulate data when conducting real time monitoring. In regard to other NAAQS pollutants - SO2, NOx, and CO are not typically identified as COCs associated with remediation. Lead is included in the PAM guidance as it is a common contaminant encountered in remediation.
41	8	5	1	Third paragraph - Section 7.1 Air Permit Requirements is actually Section 7.4	Correction made.

42	8	5	1	The definition of PM10 in parentheses, should be "Particles that are 10 microns in diameter or less [PM10]." Also it would be appropriate to change the word "or" in the second to last of the bulleted list to "and".	Corrections made
43	8	5	1	Consider adding clarification regarding applicability of this Guidance if an area of concern is a landfill and is being capped with certified clean fill only if no grading/sloping, movement of hazardous materials is being conducted? Also clarify if this Guidance would apply even if only a cover or soil cap is being placed on an AOC and the contaminated media is not being disturbed? (assuming length of time meets the criteria).	This appears to be a site-specific issue; however, PM_{10} limits would still apply to clean fill material. Keep in mind that this would apply only to projects of 20 working days or more.
44	8	5	1	The 2nd bullet in Section 5.1 ("Duration of remedial action") needs more explanation someplace (either here or elsewhere in the document) about how the constituents of concern and duration of monitoring are related. When VOC-impacted soil is being excavated to remediate, the VOCs don't stop being emitted because the workers go home. There is still potential for VOCs to be emitted during non-working hours. By the same token, at a dry dusty site, the wind could kick-up during non-working hours and impact receptors.	To address this comment, Section 7.6, Best Management Practices section has been added to the guidance discussing options sites should take to reduce air emissions during non-working hours.
45	8	5	1	Suggest clarifying the process for identifying Chemicals of Concern e.g., risk > 10-6 and HI = 0.1 or 1 or risks > 10-4 or an HI = 1 based on target organ, and other considerations. Also suggest listing the hierarchy of toxicity values that may be used e.g., IRIS, PPRTVs, and other resources reviewed by NJDEP. Also indicate where the analysis can be found e.g., ROD, BHHRA, or other documentation. Reference to Step 3 in the process and Section 5.3 may be helpful. Also discuss modeling, if NJDEP recommends specific models for this type of analysis, and how models are used in the decision making process. This section does not appear to identify the locations of the nearest resident and how they are evaluated using the model. A map of the source and the potentially exposed individuals would be helpful in this step.	As stated in Section 5.3 of the PAM guidance, and in accordance with the statute, N.J.S.A. 58:10B-12.d, the Department is required to use a cancer risk of 10^{-6} and a hazard quotient of 1. The toxicity values are listed in Appendix B and are consistent with the values used for the soil remediation standards for the inhalation exposure pathway, with the exception of using the RfC preferred over the IUR where an RfC was available. Modeling is beyond the scope of this document. Section 5.7.3 and Appendix A state that figures showing the location of monitors and receptors should be included in the PAM plan documentation.
46	8	5	2	This section specifies that a CSM should be developed to support how site COCs may impact receptors. The result will be additional effort expended to collect information on transport mechanisms, exposure pathways, background or ambient contributions, and off-site receptors of airborne contaminants, just to name a few. Please provide feedback.	All of the activities listed by the commenter should already be part of the investigation and should be conducted as part of the remedial activities.
47	8	5	2	Fourth sentence in Paragraph 1 - commas, not semi-colons to separate "source materials, emission generating activities," etc. down the list.	Corrections made

48	9	5	2	Inhalation is noted under the second bullet and in general this document focuses on inhalation, but there is a section on ingestion. Suggest references to all potential exposure pathways earlier in the document so the reader has those in mind and not just inhalation. Also, I think the parenthetical statements for Route of exposure and Exposure pathways in the bullet list are switched. Wouldn't ambient air/dust be the route of exposure and then the pathway for exposure is the inhalation of ambient air/dust? Might be splitting hairs, but seems reversed.	Corrections made for exposure pathway and route of exposure references. Ingestion is only mention in the context of lead (Pb) exposure and in the development of the conceptual site model for the case study (Appendix F). The focus of perimeter air monitoring is exposure via inhalation.
49	9	5	2	A map of the location and potential receptors in the area would be helpful. The map needs to provide opportunities for updating as needed consistent with the Conceptual Site Model. Maps are useful in providing a visual understanding of the area and potential dispersion of Chemicals of Concern. They are also important in communicating with the public.	Section 5.7.3 and Appendix A state that figures showing the location of monitors and receptors should be included in the PAM plan documentation.
50	9	5	3	The risk level ($1x10^{-6}$ for cancer) chosen for calculating HBTVs is generally more conservative than EPA's risk policy. Additionally, this section indicates that a cancer toxicity factor may be used when a non-cancer reference concentration (RfC) is not available. This compounds the conservatism of the assessment for COCs where this is done. How does DEP plan to address these concerns?	In accordance with the statute (N.J.S.A. 58:10B-12.d), the Department is required to use a cancer risk of 10^{-6} and a hazard quotient of 1. When a cancer toxicity factor must be used because an adequate noncancer toxicity value is not available, an adjustment to the exposure duration is made in the equation from 70 years to 1 year when calculating the HBTV.
51	9	5	3	The last statement of the first paragraph reads as " This approach differs from USEPA's risk range policy. The USEPA policy specifies that where cumulative carcinogenic risk for the site based on reasonable maximum exposure for both current and future land use is less than 10-4 (1-in-ten-thousand risk) or the non-carcinogenic hazard index is less than one (<1), action is generally not warranted." Should this statement be removed? Clarify the applicability of this Guidance if the Site falls under EPA's jurisdiction?	The reference to USEPA's risk range policy is outside the scope of the Department's PAM technical guidance and was removed from the guidance document to avoid any further confusion.
52	9	5	3	The text regarding EPA's risk range policy under Superfund requires clarification. Specifically, the risk range under the Superfund program is based on the National Contingency Plan and considers risks within the range of 10^{-4} to 10^{-6} and the goal of protection of an HQ = 1. It is also recommended that the text clarify the residential exposures under Superfund include a timeframe is 26 years, 6 years as a child and 20 years as an adult. The text also needs to clarify that the risk range and goal of protection for non-cancer are specific to Superfund and other programs such as RCRA may have different criteria. The text needs to clarify how to address risks greater than 1 year and provide contacts at NJDEP for further discussion. It is also suggested that the text indicate the process for updating toxicity values, exposure assumptions e.g., new additions to IRIS or PPRTV databases and how the calculator will be updated and users notified.	The reference to USEPA's risk range policy and Superfund is outside the scope of the Department's PAM technical guidance and was removed from the guidance document to avoid any further confusion. In accordance with the statute (N.J.S.A. 58:10B-12.d), the Department is required to use a cancer risk of 10^{-6} and a hazard quotient of 1. Section 5.3 of the PAM guidance was also revised to clarify that while the guidance is for any project duration, the PAM calculator is only to be used for projects less than 1 year (225 days in a 365 day period) due to the use of noncancer toxicity values in the calculator. Projects longer than 1 year will need to also use cancer toxicity values, when available, for calculating an HBTV. The PAM calculator will not allow user's to enter more than 225 days; therefore, projects that are expected to last longer than 225 days must consult the Department for the calculation of HBTVs. If future updates to the guidance or PAM calculator are needed, the updates will follow the same procedures that CSRR uses for all of its technical guidance updates.

53	10	5	3	Why are Health-Based Threshold Values (HBTVs), being derived using the health-based targets set forth in the New Jersey Brownfield Act (N.J.S.A. 58:10B-12.d)? Isn't NAAQS the standard?	In accordance with the statute, N.J.S.A. 58:10B-12.d, the Department is required to use a cancer risk of 10-6 and a hazard quotient of 1. The health-based targets set forth in the statute are used to derive all the Department's standards and screening levels. The NAAQS are only applicable to particulate matter, ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead. Of these, only lead is listed under the Department's Remediation Standards rule at N.J.A.C. 7:26D. The lead NAAQS is used as the basis to derive the HBTV for lead and the PM_{10} NAAQS is used as ceiling limit for real time monitoring.
54	9	5	3.1	DEP has created a calculator in the form of an Excel spreadsheet to help calculate the HBTVs and Response Levels, where the user inputs the exposure time (a value between 8 to 12 hours) and the project duration (a value between 20 to 225 days), and the resulting HBTV and Response Level are calculated. These values are used as the "not to exceed air concentration for the selected COCs", but there are no readily available options for accounting for "down time" in the remediation (i.e. time when airborne contaminants are not being generated). Also, except for a proposed method for addressing "hot spots" (as described in Section 7.5), there is not a readily apparent method for accounting for attenuation of airborne concentrations between source area and receptors. The proposed methodology is assuming a worst-case scenario where contaminants are being generated continuously and the receptors are continuously in close proximity to the source area. How does DEP plan to address these concerns?	HBTVs are not to exceed values and use exposure assumptions for time and duration, as referenced by the commenter. This is an accepted scientific methodology and is the same process used to develop the Department's remediation standards and screening levels. In the evaluation of potential inhalation exposure to a receptor, it is assumed that exposure occurs over a number of hours and not in a in single event and it is also understood that during that timeframe air contaminant concentration data will be variable, which is why longer durations like a full work day (e.g., 8 hours) are more reliable when assessing HBTV compliance. In addition to HBTVs, Response Levels are calculated using the Department's PAM calculator and these are to be used in conjunction with continuous real time monitoring instrumentation. Response levels are typically higher in concentration than the HBTV and they allow for the use of a shorter time weighted average with real time monitoring equipment (see Section 5.3.4). Monitors should be placed at the fence line to assure contaminants are not leaving the site, and if there are concerns about accounting for attenuation, monitors can also be placed at the offsite receptor to ensure exposure is not exceeding the HBTVs. A working day is any day in which active remediation is occurring onsite and remedial activities have the potential to generate air-borne emissions. In addition, there are provisions in Section 5.6 that allow for short-term exceedances of the HBTVs when using real-time instrumentation, with the concept that lower emissions during other portions of the day will average out to not exceeding the HBTVs over the course of the workday.

55	9	5	3.1	Suggest clarifying NJDEP contacts for additional information. It is also suggested that the text address potential updates in toxicity values and where updates can be found e.g., is the plan to update the calculator on an ongoing basis or only when new chemicals are identified at a site location.. Also suggest clarifying calculations of risks for remedial activities that are conducted around the clock e.g., 24 hours.	Contacts for questions on PAM and the development of HBTVs was added to this section. Consistent with the process for updating CSRR technical guidance documents, updates will be made to the PAM guidance and calculator when determined appropriate by the PAM committee and based on feedback from those using the guidance. Toxicity values will be updated with guidance updates, when applicable. When updates are made to the PAM guidance and/or calculator they will be accompanied with a change log. If active remediation is conducted around the clock (24 hrs/day), 24-hours should be used as the exposure time in the HBTV calculations. Currently the PAM calculator allows users to input an exposure time between 8-hr and 12-hr. If the user needs to enter a value greater than 12-hr, they should contact the Department.
56	9	5	3.1	Even when the typical work day is only 8-12 hours, potential for impacts to off-site receptors still exist if certain conditions are present	To address this comment, a Best Management Practices section has been added to the guidance discussing options sites should take to reduce air emissions during non-working hours.
57	10	5	3.2	"PM_{10}" does not need to be in parentheses. It is also defined incorrectly as you have it in text (see comment #2). TVOC in the same paragraph is not previously defined. (Total Volatile Organic Compounds)	Corrections made.
58	10	5	3.2	This section states that the most stringent of the site-specific HBTVs should be included in the PAM plan but, additionally other contaminants should also be taken into account. Furthermore, it states that analytical confirmatory sampling should include all potential COCs at the site. The number of COCs to be sampled is vague but will ultimately have a material effect on the remediation of the site due to the requirement for analytical confirmatory sampling of a large number of airborne COCs. It is recommended that there be an agreement with DEP on what COCs are sampled, as this will be an important aspect of implementing a PAM plan.	At the initial implementation of a PAM plan, all COCs at the site/area of concern should be included in the list of analytes for confirmatory sampling. Section 5.4.2.2.1 of the guidance states "it is recommended that initial confirmatory samples be collected for the first three or more consecutive days at the commencement of intrusive activities." If, after several days of initial confirmatory sampling, results consistently show COC concentrations below the HBTV, confirmatory sampling efforts and the analyte list may be reduced. Professional judgement is to be applied in these situations.
59	10	5	3.2	This section states that real-time monitoring data produced from instrumentation capable of direct measurement of COCs in the field should also be compared to the HBTV. This seems impractical if a large number of COCs are selected for sampling. Please provide feedback.	This can be accomplished with the use of a Field GC as it can provide direct measurements in real time for multiple COC. Since a field GC can provide real time data for individual COC, that data should be compared to the HBTV. When using real time instrumentation that cannot provide contaminant specific data (e.g., PID) the response level should be used. When using non-specific real time monitoring instruments and response levels, confirmatory sampling and laboratory analysis must also be conducted to corroborate real time data.

60	10	5	3.2	In the last paragraph of this subsection, an example is given, "(e.g., 95% UCL of the mean)". I am not sure if the term UCL is common knowledge. Maybe define before using.	Correction made.
61	10	5	3.3	"VOC" should be changed to "TVOC"	Correction made.
62	10	5	3.2	Clarify how this is determined? Is documentation of the rankings expected to be submitted for evaluation by NJDEP? Suggest clarifying the approval process for alternative approaches e.g., contacts, information that needs to be provided in the submission, etc.	The contaminant with the lowest HBTV using the Department's PAM calculator is the most restrictive. Refer to the case study in Appendix F to view an example of this process. For additional questions, CSRR contact information for PAM can be found in Section 5.3.1.
63	10	5	3.3	Global edit: change "Response Level" to "Action Level." This is the more common term in the field.	The PAM technical guidance committee deliberated on whether "response level" or "action level" should be used and committee consensus was that the term "response level" was more appropriate. No changes made.
64	11	5	3.3	Maybe also define PID and FID before using them as acronyms, even though these are more common knowledge in site remediation.	Corrections made.
65	11	5	3.3	A PID or FID Cannot provide you with "the percentage of the individual volatile in the contaminated medium." Only a field GC can do this for you.	As stated in the document, the percentage of the individual volatile in the contaminated medium is initially based on the concentration in the soil and it can be later refined once analytical air data from confirmatory sampling is received. For details on how to calculate the response level, please refer to the Users Guide in the PAM calculator. An example is also provided in Appendix F, Case Study.
66	11	5	3.3	The statement " Laboratory analysis should confirm the assumptions for the use of the response level (i.e., a time-weighted air sample should be taken and analyzed for the specific COCs). See Section 5 of the PAM Calculator User's Guide in the PAM Calculator for additional information regarding development of response levels." applies to development of PM10 response levels. Shouldn't the same be said for TVOCs?	Yes, it would apply to TVOCs as well. This section was revised to clarify that this statement applies to both TVOC and PM_{10}
67	11	5	3.3	The discussion regarding the NAAQS - PM10 needs clarification. Was this developed by EPA? Clarify if the SAB is EPA's Science Advisory Board if appropriate.	As provided in Section 1 of the guidance document, this is the Department's Science Advisory Board and the link is provided (https://dep.nj.gov/wp-content/uploads/sab/sab-perimeter-air-monitoring.pdf)

68	11	5	3.4	Why are you limiting exposure to the 8-12 hour work days? When VOC-impacted soil is being excavated to remediate, the VOCs don't stop being emitted because the workers go home. There is still potential for VOCs to be emitted during non-working hours. By the same token, at a dry dusty site, the wind could kick-up during non-working hours and impact receptors.	To address this comment, a Best Management Practices section has been added to the guidance discussing options sites should take to reduce air emissions during non-working hours.
69	11	5	3.4	Clarify the reporting requirement e.g., who is contacted at NJDEP..	Section 5.3.4 discusses the use of the developed response levels. If response levels are exceeded, it is the responsibility of the investigator to document the exceedance, as well as the actions implemented to address the exceedances in the Remedial Action Report.
70	11	5	4	Step 4: Two of the major factors in determining how a perimeter air monitoring program will be implemented is DURATION of remediation and POWER availability. There must be some discussion in this guidance about the duration: whether or not is has to be just during working ours (8-12 hours/day) or continuous (24/7). And also, the same goes for the availability of power. This informs the approach when selecting equipment, which also impacts the cost. When the cost is impacted, the quality and extent of activities at sites undergoing remediation are greatly influenced.	PAM is to be implemented on days when active remediation is taking place. To derive the exposure duration, a conservative estimate on the total number of days that active remediation is expected to occur should be used in the PAM calculator to derive HBTVs and response levels. During non-working hours best management practices should be employed as detailed in section 7.6 of the guidance. If there are concerns that best management practices are not enough to suppress air emissions, it is recommended PAM be employed during non-working hours as well to confirm that air emissions are not migrating off-site. Cost should not be used as the justification for not implementing appropriate remedial measures, including PAM, for the protection of human health and the environment.
71	11	5	4	Clarify which Division at the NJDEP will review the information and where to find the appropriate contact for further information.	CSRR has a contact page that can be found at: https://www.nj.gov/dep/srp/srra/srra_contacts.htm. The contacts for perimeter air monitoring can be found under "technical questions". This link is also provided in section 5.3.1 of the guidance document. PAM plans are part of a remedial action workplan, which typically are not reviewed by the Department. The final PAM report should be submitted with the RAR for the site or area of concern.
72	11	5	4.1	Suggest including a time element e.g., can the analytical data be developed in an appropriate time frame to identify exceedance of the HBTV for the various chemicals of concern and what actions can be taken to meet this criteria..	It is assumed that the real-time data will fill this role and the analytical data will act as confirmatory data.
73	12	5	4.1	The specific PAM objectives are onerous for routine remediation projects; these include providing "real-time air monitoring and meteorological data" and corroboration that "real-time data and associated response levels are adequate in meeting HBTVs based on comparison to analytical data" of air samples by laboratory analysis, and documentation that "the PAM program is working as designed". Please provide feedback.	Conducting perimeter air monitoring is already a requirement per the Technical Requirements for Site Remediation, N.J.A.C. 7:26E-5.5(b)7. This type of monitoring should already be conducted at active remediation sites. The guidance applies to sites where the remediation will take more than 20 working days within a 30 day period.

74	12	5	4.1	Recommend changing " (i.e., via air monitoring and/or sampling and analysis)" to "(i.e., via air monitoring and laboratory analysis)". In the following sentence, you can simplify by changing " periodic confirmation using on-site sample collection to be analyzed at an off-site laboratory" to "laboratory analysis"	Laboratory added to first sentence. Text remains unchanged in second sentence.
75	12	5	4.2	"For most PAM programs, a combination of some type of real-time COC measurement technology or surrogate (e.g., TVOC and PM10 to represent COC concentrations) together with periodic confirmatory sample collection and laboratory analysis will be employed". If TVOC and PM_{10} are proposed as potential surrogates for other present COCs on a site, how would components like H_2S or CH_4 be measured using real-time instruments since these would not be captured under a TVOC or PM_{10} surrogate?	The parenthetical is e.g. (in example), not i.e. (that is). They are merely examples of surrogate sampling, not an exhaustive list. H_2S meters can be employed for H_2S and FIDs (which detect TVOCs) are capable of detecting CH_4.
76	12	5	4.2.1	In the first sentence, recommend changing " detect contaminant plumes which" with "assess airborne concentrations that" and remove the word "undetected" in the remaining part of the sentence.	"assess airborne concentrations that" added; however, "undetected" is retained with "otherwise" added as a modifier.
77	12	5	4.2.1	Realistically, air monitoring of COCs would be conducted using handheld real-time monitors; however, this section states that handheld monitors are used to supplement mobile or stationary monitoring stations, and are not used as the primary means of perimeter air monitoring. This requirement substantially increases the resources needed to comply with the guidance. Please provide feedback.	Without stationary monitors operating for the duration of the workday, potential contaminant plumes cannot be fully detected.
78	12	5	4.2.1.1st bullet	This section must recognize the major limitations of using hand-held equipment, including: 1) difficult to accurately know the exact location of hits that occur if someone is walking around all the time, and 2) it's hard to incorporate local weather conditions (especially wind direction, which is so key!) into this data. Field GC can be used at real time monitoring locations as well.	Agreed. The first bullet in Section 5.4.2.1 also states mobile handheld real-time monitors are "used to supplement mobile or stationary real-time monitoring stations and not used as the primary means of perimeter air monitoring on these sites."
79	12	5	4.2.1	Also indicate considerations regarding replacement of monitors.	Sections 5.6.1 and 5.6.4 address replacing malfunctioning monitors.
80	13	5	4.2.1	The last paragraph in this section, "for real time monitoring" does not read clearly to me. Especially the last sentence, feels like it needs to be reworded.	Sentence structure changed.
81	13	5	4.2.1	Recommended changes: Under Stationary or mobile real-time monitoring…1) remove "typically stationary air" from the first sentence. 2) Replace " demonstrate in real-time that contaminant plumes are not migrating off site." with "Assess real-time concentrations at the site perimeter." 3) add "These stations typically consist of" in front of "PIDs, FIDs" etc. 4) at the end of the paragraph, Replace "wind speed and direction (WSD) monitors are typically integrated in these stations." with "meteorological stations."	First two suggestions adopted, last two suggestions were not incorporated.

82	13	5	4.2.1	This section specifies that the primary method of collecting COC data should be stationary or mobile real-time monitoring stations placed in semi-permanent locations to cover appropriate sensitive receptors. This approach may result in the need for more than one monitoring station depending upon the distribution of sensitive receptors around the site as well as the variability of the wind. This requirement substantially increases the resources needed to comply with the guidance. Please provide feedback.	There is a need to use as many monitors as necessary to ensure protection of off-site receptors. Using only one monitoring station is not protective.
83	13	5	4.2.1	This section specifies that real-time on-site meteorological recording equipment be used to determine air flow across a site. This requirement substantially increases the resources needed to comply with the guidance. Please provide feedback.	Without knowing wind direction, the protection of off-site receptors cannot be assured and upwind sources would remain unknown. Wind direction is also necessary if there is a community concern and post reconstruction of exposure needs to be evaluated.
84	13	5	4.2.1	This section further specifies that for all real-time monitoring, specific QA/QC procedures should be detailed in the PAM plan including, but not limited to, calibration certificates, zero and daily calibrations, bump testing, co-located monitoring, validation (sampling and laboratory analysis), and data integrity. Collecting, analyzing, and documenting this information will be onerous but not doing this could result in the PAM plan being rejected. Please provide feedback.	It is essential to ensure that the equipment being used is properly calibrated and functioning correctly.
85	13	5	4.2.1	In the stationary or mobile real-time monitoring section: I would say "typically integrated into these stations" not "in"	Correction made.
86	13	5	4.2.2	Recommend changing "demonstrate and document" with "assess if"	The language in the section will remain "demonstrate and document" as it was determined to be more appropriate.
87	13	5	4.2.1.2nd bullet	The number of stations and their ability to provide adequate coverage at a site where there is high variability in wind direction (i.e. the wind changes direction frequently), is very important. Those responsible for the PAM can't just put one upwind and one downwind monitor up without a weather station, and expect to have good coverage. Even with a weather station, only having two stations requires vigilance and frequent moving of stations.	Agreed. It is recommended that a weather station always be used, and a weather station with every monitoring station is preferred to better assess what direction winds are traveling and to assist in data evaluation.

88	13	5	4.2.1	Define sensitive measurement locations and the time frame for modeling and data review.	It is assumed the commenter is referring to the third bullet in section 5.4.2.1 that states "Such data is typically used for documenting upwind and downwind locations relative to the identified emission source(s), and to support determination of downwind sensitive receptor measurement locations. Meteorological data can also be used to assess, through dispersion modeling relationships, plume dilution between the source and the sensitive receptor location." "Sensitive receptor" is defined in the glossary and the measurement locations would be the locations that were selected for PAM where sensitive receptors are present or downwind from remediation. Dispersion modeling would typically be conducted before implementation of the PAM plan. It may also be used to support a post-remediation risk assessment of human health. Data review would be conducted during perimeter air monitoring and final data should be submitted in the PAM report with RAR.
89	13	5	4.2.2	Confirm sampling method selection and selection process. Suggest providing a link to NELAP such as: https://www.epa.gov/measurements-modeling/resources-assessing-measurements . Also, provide email address, and link to NJDEP's Office of Data Quality and contact information.	Contact information for Office of Data Quality was added to Section 5.4.2.2. of the guidance. No other changes made.
90	14	5	4.2.2	Last paragraph, I would reword the first "However" sentence to say: However, if it is determined that the method needs to be used immediately, or if the method is to be used short-term only, or if it is determined that the time required…. For clarity	Changes made.
91	14	5	4.2.2	For analyses that have no laboratory certification for short-term or immediate use, pre-approval is required. How is the pre-approval request to be submitted - in the PAM Plan, or a separate submittal? If separate, who should it go to and is there a timeframe by which NJDEP must provide approval as that could delay remediation?	Pre-approval would be a separate submittal. For questions on timeframe and what is to be included in the submittal, please contact the Department's Office of Data Quality. Contact information has been added to Section 5.4.2.2 of the PAM guidance.
92	14	5	4.2.2.1	Confirmatory samples must be sent to an analytical laboratory and it is recommended that these samples are collected for the first three days at the start of the remediation, and then approximately once per week after that. Confirmatory samples should be collected for the duration of the workday. This requirement substantially increases the resources needed to comply with the guidance. Please provide feedback.	Due to the fact that most real time air monitoring is done using instrumentation that is not contaminant specific, laboratory analysis must also be conducted to confirm that contaminant concentrations are below HBTVs and that the established surrogate, real time response levels are appropriate.
93	14	5	4.2.2.1	Recommend replacing "demonstrate that" with "assess if".	Changes made.
94	15	5	4.2.2.1	"Once the results are received, an evaluation can be made to determine if the response level is appropriate and protective of public health as represented by the HBTVs." Suggest "Once the results are received, the appropriateness of the response level and protection of public health as represented by the HBTVs can be evaluated."	No changes made.

95	15	5	4.2.2.1	Is NJDEP pre-approval needed in order to reduce the confirmatory sampling frequency from daily to weekly or would we just follow the PAM workplan that we prepare?	Assuming this is a typical LSRP case, Department pre-approval would not be required to reduce the confirmatory sampling frequency from daily to weekly.
96	15	5	4.2.2.1	Should PCBs be defined before using the acronym?	Yes, PCBs should be defined. Change made.
97	15	5	4.2.2.1	Suggested alternate language for the first paragraph: recommended that initial confirmatory samples be collected for the first three or more consecutive days "prior to" the commencement of intrusive activities, "to collect a baseline dataset" and periodically (e.g., once per week) afterward to evaluate worksite conditions. Confirmatory sampling is also recommended after a significant change in work, operational conditions, or during hotspot remediation. Confirmatory samples should be collected for the duration of the workday. The workday/sample collection durations should not exceed the exposure time input values used in HBTV calculations. Additionally, confirmatory samples should be collected at the predicted predominant downwind location or monitoring station. "An upwind sample should also be collected to assess potential up-wind, off-site contaminants."	No changes made to first set of suggested edits. While sampling and laboratory analysis is recommended prior to the commencement of remedial activity to establish baseline air concentrations, it does not absolve the investigator from also collecting initial confirmatory samples for the first three or more consecutive days at the commencement of intrusive activities. The second set of edits were incorporated into the guidance that recommended collection of an upwind sample.
98	15	5	4.2.2.1	Suggest clarifying if the sampling is conducted in a higher concentration area e.g., hotspot, what other activities are required to reduce potential exposures.	This Section of the guidance states that in addition to real time monitoring, confirmatory samples should be taken when hot spots are remediated. Section 7.5 of the guidance also addresses hot spot scenarios.
99	15	5	5.1	Potential air monitoring locations are provided as: (1) "at the receptor", or (2) at the on-site locations between the active work site and any identified off-site receptors. Given the expectation that the air data at these two different potential sites (at the receptor or at the work-site) would be significantly different in magnitude due to air dispersion at the near-field emission sources. In addition, if the latter approach is taken (the most likely approach), then the data collected at the monitoring stations probably will not accurately represent exposures to the receptors as it will not take into account attenuation of COCs between the fence-line and the actual location of the receptors. It is recommended that more guidance be provided when air monitoring should be performed at the receptor or at the work-site. Further, this section specifies that handheld wind monitors may be used for screening purposes but cannot be used on their own to meet the air monitoring requirements. This requirement substantially increases the resources needed to comply with the guidance. Please provide feedback.	The premise that the COC concentration will be "significantly different in magnitude" is not accurate. The difference in concentration will be dependent on the distance from the fence line to the receptor, which may be a very short distance for many sites located in urban areas. It is preferred that air monitoring be conducted at the receptors as it would provide the most accurate information, but it is recognized that this may not be feasible due to access restrictions and equipment security concerns. In cases where air monitoring cannot be conducted at the receptor, it should be conducted along the fence line, taking into account wind direction, location of remedial activities, and location of down wind receptors. Real time monitoring can be conducted with instrumentation capable of direct measurement of COC or real-time monitoring instrumentation can be used that measures TVOC or PM10. When using the latter, real time data should be compared to the response level. The response level is derived using the PAM calculator and is calculated using site-soil data. For this reason, it is typically higher in concentration than the HBTV, which provides greater flexibility for the investigator. Due to the fact that real time monitoring screening instruments use a surrogate (TVOC, PM10), confirmatory sampling and laboratory analysis must also be conducted to corroborate real time data.

100	15	5	5.1	It would be appropriate to remove the word "climatological"	Removed.
101	15	5	5.1	For the last sentence beginning with "Additionally": I would remove the coma after receptor(s) and place one after "purposes" and "station".	Changes made.
102	16	5	5.1	Suggest clarifying updates to NJDEP are needed when new sample locations are selected due to changes in sampling locations resulting from damage or theft of existing equipment, or changes in remedial actions, and how this will be addressed in the evaluation of sample results.	Most contaminated sites in New Jersey are managed by an LSRP and are not under direct oversight by the Department. Therefore, those sites do not require preapproval from the Department. However, if additional guidance is desired regarding sampling location selection, a technical consultation for perimeter air monitoring may be scheduled with the Department.
103	16	5	5.2	This section specifies that at least one mobile air monitoring station should be placed upwind of the work zone and one station placed downwind of the work zone, thereby requiring that at least two mobile air sampling stations need to be used to satisfy the guidance. Further, it recommends adding wind speed and direction instruments to both monitoring locations when the wind is “variable”. This requirement substantially increases the resources needed to comply with the guidance. Please provide feedback.	One upwind and one downwind monitor would be the minimum recommendation. Without an upwind monitor, any exceedance would be attributed to the site, regardless of whether there is an upwind source. For larger sites, additional monitors would be required to ensure protection of offsite receptors. It is recommended that a weather station always be used, and a weather station with every monitoring station is preferred to better assess what direction winds are traveling and to assist in data evaluation. It is in the best interest of the investigator to assess wind speed and direction, as well as relative humidity, temperature, and precipitation, as all these parameters can influence instrument readings. Having this additional meteorological information can better inform the investigator's understanding on what may be causing response level or HBTV exceedances.
104	16	5	5.2	At the end of the paragraph: recommend replacing "wind speed and direction instruments to these stations to identify, in real-time, results that are upwind and downwind of active site activities." with "a meteorological station to the program so that areas that are upwind and downwind of site activities can be identified."	Text remains as written.
105	16	5	5.2	Suggest considering the potential that sampling locations may be moved depending on remedial actions.	Sampling locations can be moved during perimeter air monitoring. This is acknowledged in the guidance document.
106	16	5	5.2	There is a fine difference between "fixed and mobile" air stations. Please give examples. How "fixed" is fixed in this context?	Fixed would be stations that remain in one location, whereas mobile stations may be moved during the course of the day.

107	16	5	5.2	I reiterate my comment about coverage at sites where the wind changes frequently: The number of stations and their ability to provide adequate coverage at a site where there is high variability in wind direction (i.e. the wind changes direction frequently), is very important. Those responsible for the PAM can't just put one upwind and one downwind monitors up without a weather station, and expect to have good coverage. Even with a weather station, only having two stations requires vigilance and frequent moving of stations.	Agreed. The number of monitors selected for PAM will be dependent on the size of the remediation, the remedial technology selected, the COCs and concentrations present in site soils, the distance to and number of off site receptors, the local meteorology, as well as the real time monitoring technology selected to assess concentrations of COCs and document HBTV exceedances. There is no one size fits all approach.
108	16	5	5.4	Recommend removing the word "becoming" from the third sentence.	Change made.
109	15	5	5.Step 5	Suggest clarifying the reporting requirements for the data under this step.	This section of the guidance discusses the identification of sampling and monitoring locations and monitoring schedule. Documentation requirements for the PAM Report are provided in Sections 5.7.3 and 5.7.4, as well as Appendix A.
110	16	5	5.5	This section recommends also collecting data on precipitation, humidity, temperature, and air pressure on-site. This only adds to the data collection burden at remediation sites with only limited real utility. Please provide feedback.	In addition to wind speed and direction, meteorological stations will also often measure precipitation, humidity, temperature, and air pressure. Also, this information should be equipped with data logging capabilities to reduce human error and alleviate the need for additional resources. These additional meteorological readings can be very useful when evaluating potential causes for high PM10 concentrations, as temperature, relative humidity, and precipitation can effect the instrument readings.
111	16	5	5.5	Recommend adding the word "relative" in front of humidity	Change made.
112	16	5	5.6	Provide a link to the NJDEP Air Enforcement Program here.	It is stated in this section that contact information for regional enforcement offices can be found in section 7.4.
113	17	5.5	5.6	"Additional monitoring may be necessary to address community concerns (e.g., odors or radiation) or identify if other sources are causing excursions of the HBTV.	This section was originally titled "Determining the Need for Additional Monitoring Procedures" but in reality it addresses odor and radiation concerns. To provide clarification the section of this title was changed to "Additional Air Monitoring Procedures for Odors and Radiation"
114	17	5	5.7	What kind of recourse would a company have if the background measurements of air emissions attributable to off-site sources are near applicable HBTVs?	SAB recommendation was that even if upwind concentrations approached or exceeded HBTVs, a site's contributions should not cause an increase to above the HBTV level. Therefore if this situation occurs, we recommend contacting the Department in order to resolve the issue equitably.
115	17	5	5.7	Air monitors/samples collected nearby active roadways are likely to contain vehicle emissions which may exceed HBTVs - the guidance directs us to consult NJDEP if the background sampling shows levels at or above the HBTVs. It seems that this will cause quite a backlog of consultations for a lot of sites in active areas. It would be beneficial if the NJDEP could publish values typical of vehicular traffic so the investigator can better evaluate the data they are seeing near a roadway.	

116	17	5	5.7	It is recommended that consistency be maintained in sampling methodology throughout the period of remedial activities to avoid uncertainties between baseline and subsequent results.	Agreed, that every effort should be made to develop and implement an effective sampling methodology that can remain consistent throughout the course of the remediation. However, sometimes issues can arise that require a change, such as measurement data quality objectives not being achieved. In those cases, follow the guidance in Sections 5.7.1 and 5.7.2 of the PAM technical guidance.
117	17	5	5.7	This section recommends collecting COC concentration and meteorological data from one upwind and one downwind monitoring location. The guidance does state that this can be done with real-time monitors; however, it also advises that confirmatory sampling (i.e. analytical samples) may be beneficial to collect as well. It is recommended that clarification be provided re: to what extent background samples are required.	Section 5.5.7 provides guidance on background sampling. While background sampling is not required, it is strongly recommended to obtain a better understanding of background air concentrations in the area. It also provides the investigator with an opportunity to test out and troubleshoot the air monitoring equipment and procedures before remediation begins. Without an upwind monitor, any exceedance would be attributed to the site, regardless of whether there is an upwind source.
118	17	5	5.7	Suggest moving this section to the forefront of Section 5.5	Text remains as written.
119	17	5	5.7	The last sentence of the last paragraph does not make sense. I think the second "should" needs to be changed to "if" so it reads, PAM report if background concentrations…	Change made.
120	17	5	5.7	Clarify if sampling is conducted for 24 hours or 8 to 10 hours or another time period and reporting requirements.	The second paragraph of this Section states "During background sampling, PAM stations should be operated during the anticipated normal workday conditions (e.g., Monday-Friday between 7AM and 3PM for an 8-hour workday) in order to accurately represent the proposed remediation project schedule."
121	18	5	6	General comment: The response level should 1) match the TWA of the sampling program, and 2) should be lower in concentration so that it acts as an early warning to the project team that the HBTV is being approached. It should not be used as a method to assess real-time, instantaneous concentrations. This practice is consistent in other regulatory programs. This section should be discussed at large, or clarification is needed.	The HBTV is contaminant specific and should be compared to laboratory analytical data or real time data collected with an instrument capable of direct measurement since it is assumed 100% of what's measured is the contaminant in question. The response level, on the other hand, is for use with real-time monitoring instrumentation that uses a surrogate, such as TVOC or PM10, rather than direct measurement of individual COC. Due to the fact that these instruments will provide a total concentration, the response level is calculated using site soil data in the PAM calculator (see PAM Calculator User's Guide). This adjustment typically results in a higher response level concentration when compared to the HBTV because the majority of sites have multiple COC. A shorter TWA (e.g., 15 minutes) is recommended for the response level so that actions can be taken before the HBTV, which is based on work day duration (e.g., 8 hours), is exceeded. If the response level TWA matched the HBTV work day TWA, the HBTV would likely be exceeded before actions could be taken to prevent the exceedance.

122	18	5	6	Recommend changing "Determine the source" with "assess the potential source"	Change made.
123	18	5	6	It would be helpful to clarify which chemicals can be evaluated using PID and actions in the event that a chemical can not be detected using PID. Suggest indicating that PIDs detect chlorinated hydrocarbons, formaldehyde, amines, methanol, aromatic compounds, some toxic VOCs, and some inorganic compounds, such as ammonia and hydrogen sulfide, which substances can not be detected using PIDs. Suggest including information regarding other sampling methods here.	This can vary dependent on the type of lamp for the PID that is used. It is the responsibility of the investigator to ensure that the equipment that is selected for PAM can monitor the COC and that the real-time instrumentation detection limit is lower than the response level. If the investigator does not have the expertise to determine this, they should employ someone onto their team that has the background knowledge.
124	N/A	5	6	It is recommended that clear guidance be provided on protocols for alerting or alarm triggering (in the case of exceedances). For example, what is the guidance on minimum required time or response time between the measured exceedance and alerting?	Clarification has been added here and also refers readers to Section 5.6.1.
125	18	5	6.1	It is stated that response level exceedance occurs as a result of remediation in the first 15 minutes, corrective actions should be initiated. The corrective actions are not identified for that exceedance. It is not until 30-minutes of exceedances occur that vapor and/or dust control measures are implemented. Clarify what is meant by corrective actions after the initial response action exceedance.	Clarification on what corrective measures should be implemented was added to this section.
126	19	5	6.1	It is recommended that a consideration be provided where operations have the potential to continue their current activity if stopping the activity mid-task will present an unsafe working environment.	This consideration should be addressed under the Health and Safety Plan.
127	19	5	6.1	It is stated that if an exceedance is due to an off-site source, NJDEP Enforcement should be notified. Please clarify because sustained traffic adjacent to the site or an asphalt operation could be a cause and that should not be reason to call NJDEP.	Professional judgement should be used in these situations. For example, if nearby traffic on a major highway is causing an exceedance of PM10 there would be no reason to call NJDEP. However, if a truck was idling for hours adjacent to the site and was determined to be the cause of the exceedance, it should absolutely be called into NJDEP as it is out of compliance with New Jersey's anti-idling laws.

128	19	5	6.1	A 1-hr confirmatory air sample is not required until 45 minutes after the exceedance has been identified, with corrective actions having been initiated at least 15 minutes before. It is not clear what the purpose of this sample as corrective actions would have been initiated, continue to be implemented, and work stopped 15 minutes after the sample collection starts. It would seem the sample would not represent the actual exceedance and concentrations would be lower.	Section 5.6.3 of the PAM guidance states "A 1-hour sample will dilute the concentration of an instantaneous exceedance and may not be directly correlated to the HBTV, however, the speciation of contaminants in the analytical data may help to conclude whether the perimeter response level exceedance was caused by the original constituents of concern used to calculate the site-specific HBTVs or from another source. The analytical results from the 1-hour confirmatory sample may also be used to ease community concerns in the event that perimeter air monitoring data is provided directly to the public or if there is a health concern. It should be noted that the optional 1-hr confirmatory sample for response level exceedances does not replace the need to collect routine confirmatory samples over the duration of a workday to ensure the effectiveness of HBTVs, as detailed in Section 5.4.2.2. It may be used, however, to determine whether work modifications should be implemented or if there are remedial options that may be more protective of receptors."
129	19	5	6.1	For the sentence beginning with, "In addition to an exceedance" I would add "should be" to make it read, "and instrumentation should be inspected to…"	Change made.
130	18-19	5	6.1	It would be helpful to clarify the types of comparison values e.g., average concentration over the day, not to exceed value, or maximum concentration. It is unclear what actions will be taken if the chemical is not site-related (section B). Suggest including a contact at NJDEP for additional information and reporting requirements, and the overall reporting process for on-site chemicals needs to be clarified. It would also be helpful to outline the process in the event of an exceedance e.g., who is contacted, are daily or monthly reports provided, and the overall reporting and approval process.	The comparison values are the HBTV for chemical-specific monitoring results and the response level for real time monitoring using a surrogate. Both of these values are calculated in the Department's PAM calculator. Section 5.6.1 discusses the actions that should be taken to address exceedances of the response level. A shorter TWA (e.g., 15 minutes) is recommended for the response level so that appropriate actions can be taken before an exceedance of the HBTV occurs. Section B is referenced by the commenter, which is currently not a section within the guidance document. As stated in the bottom of Section 5.6.1, if the exceedance is caused by a chemical that is not site related, NJDEP Enforcement should be notified at 1-877-WARN DEP and documented in the final PAM report. CSRR contacts for questions related to PAM are found at https://www.nj.gov/dep/srp/srra/srra_contacts.htm. PAM plans are part of a remedial action workplan, which typically are not reviewed by the Department. The final PAM report should be submitted with the RAR for the site or area of concern.
131	19	5	6.2	This section states that in the event that real-time instrumentation is not available, daily air samples should be collected for laboratory analysis and expedited for a 24-hour turnaround time, and results will be compared against the HBTVs. This only adds to the data collection and analysis burden at remediation sites. Please provide feedback.	Upon receipt of the first 3 days of expedited results, if COC concentrations are below the HBTV, laboratory analysis no longer needs to be expedited. It is also understood that in some cases a 24-hour turn

					to be expedited. It is also understood that in some cases a 24-hour turn around from the laboratory may not be an option. In these cases, it is recommended to obtain the fastest turnaround time possible.
132	20	5	6.2	Laboratory analyses are required on a 24-hr turnaround if real-time air monitoring cannot be performed. This may not be practical or possible based on laboratory methods and laboratory capacity. In addition, daily lab analyses at 24-hr turnaround can add huge expense to the remediation, and may not be necessary for all site remediation activities.	
133	20	5	6.3	A field GC can be a good tool to respond to response level exceedances. For example, some commercial systems include PIDs that can trigger field GCs when TVOC action levels are exceeded.	Agreed. A field GC is preferred for PAM when feasible.
134	21	5	6.2	This time the warn NJDEP language cites a "specific off-site source" whereas on page 19, 5.6.1 there is no use of the word "specific". Recommend making the language consistent across the guidance document.	A word search was conducted in Section 5.6.2 of the document and "specific off-site source" was not mentioned here so it is assumed the commenter was referring to Section 5.6.4. It is agreed that the terms should be consistent so "specific" was removed from Section 5.6.4 to be consistent with Section 5.6.1.
135	21	5	6.4	"In the event the exceedance is caused by monitoring equipment malfunction, the equipment should be ~~immediately~~ re-set, repaired, or replaced as soon as possible as appropriate". Use of the word immediately could be construed to have the same meaning as the Spill Act, which the courts have indicated means 15 minutes when reporting of a discharge is required.	Text remains as written. This section does not reference the Spill Act and use of the phrase "as soon as possible" is too vague.
136	21	5	6.4	" If the exceedance is caused by a specific off-site source, NJDEP Enforcement should be notified, at 1-877-WARN DEP the first time this occurs." Has the hotline been made aware that they would be receiving these calls? The information required to be provided to the hotline, including specific language to use to start the call should be provided. Otherwise, there my be confusion that a discharge is being reported.	The NJDEP hotline number is covered by multiple programs in the Department and Air Enforcement is already responding to such calls regarding off-site sources of air emissions.
137	21	5	7.1	Recommend adding: "Modification to the PAM plan may also be necessary should the following occur: • Substantive changes in remedial process; • Changes in duration of operation; or • Receipt of new data on the nature and extent of contamination. • Change in the location or type of potential receptor • New source of potential emissions unrelated to the Site."	The bullets were revised to include "new source of potential emissions unrelated to the site". However, "change in location or type of potential receptor" was not added as is did not seem to be a likely event.
138	21	5	7.Step 7	Suggest indicating the need to update any changes in contacts e.g., project officers, etc. It may also be helpful to identify contacts in NJDEP that will be involved in reviewing the data and the process.	CSRR contacts for questions related to PAM are found at https://www.nj.gov/dep/srp/srra/srra_contacts.htm. PAM plans are part of a remedial action workplan, which typically are not reviewed by the Department. The final PAM report should be submitted with the RAR for the site or area of concern.
139	22	5	7.3	This section lays out the documentation requirements for a PAM report and, these requirements alone present a significant effort. Please provide feedback.	All of the documentation requirements listed in Section 5.7.3 are needed to demonstrate PAM was conducted appropriately to protect public health and the environment. Many of the listed documentation requirements are also already required pursuant to N.J.A.C. 7:26E-1.6 and N.J.A.C. 7:26E-5.7.

140	22	5	7.3	It would be helpful to identify contacts for submission of the information and contacts for additional information.	As stated in this section, a PAM report should be provided as part of the Remedial Action Report (RAR). CSRR contacts for questions related to PAM are found at https://www.nj.gov/dep/srp/srra/srra_contacts.htm.
141	23	5	7.4	The discussion of Superfund requires clarification regarding jurisdiction and regulatory requirements for the State and EPA. Perhaps an example of outreach activities by NJDEP would be more appropriate in this section.	This is not a discussion of CERCLA, this section merely states that public outreach may be needed for CERCLA sites.
142	23	6	0	First sentence needs commas: "which, when properly applied,"	Changes made.
143	23	6	N/A	1st paragraph: make the objective statement consistent with Section 2.	While the language is not word-for-word identical in sections 2 and 6, the overall objective statement is the same.
144	23	6	1	This section lays out Data Quality Indicators (DQI) for which Data Quality Objectives (DQO) must be developed. DQOs should be developed for: accuracy, precision, representativeness, completeness, comparability, and sensitivity of the data. This section recommends that the PAM plan provide a side-by-side comparison of each DQO for precision, accuracy, and sensitivity with the selected technology or method precision, accuracy, and sensitivity specifications. It is recommended that more guidance be provided for how to interpret such a side-by-side comparison, or if any corrective action would be required.	Refer to DQO checklists in Appendix E of the PAM guidance for real time monitoring and analytical methods.
145	24	6	2	Can a properly calibrated field GC be used to substitute for confirmation sampling?	Yes, since a field GC provides direct measurement of COC, it can be used as a substitute for confirmation sampling.
146	25	6	2	It is recommended that proposed sampling locations also account for effects of air downwash from nearby buildings, structures, or vegetation, which could lead to data that is not representative of the site's emission sources.	The main objective of PAM is to protect off-site receptors from air emissions associated with remedial activities that are above the HBTV. As such, the main focus when determining the sampling locations should be proximity of remedial activities to offsite receptors, followed by wind direction. Air downwash from nearby buildings/structures should be taken into account when dealing with stack emissions from treatment processes, where the release point is much higher above the ground. However, with remediation of soils, emissions generation typically occurs at ground level where building downwash would have less of an impact.
147	25	6	2	Under **Sampling Location,** for the last sentence, do you mean that the PAM plan should outline the ideal monitoring locations and then document adjustments that were made to account for interference? Or do you mean that the PAM plan should just note the locations of the instruments and why these locations were chosen? It's not entirely clear to me.	The last sentence in this section has been revised to provide additional clarification.
148	25	6	2	Under **Instrument Inspection**, I would just add a comma to the last sentence in between, "as their counterparts, as these devices…"	Change made.

149	26	6	2	Under **Data Integrity,** I would just add "the" before "firmware"	Change made.
150	26	6	2	Under **Operational Hours/Power Requirements,** I would add "to" before "determine"	Change made.
151	26	6	2	Data retention and reporting. The Board Rules require an LSRP maintain documents for a minimum of 10 years (NJAC 7:26i-6.27). The Guidance should be consistent with the Board Rule to avoid conflicts.	Agreed. Change made.
152	26	6	3	I would add a comma to this sentence: "Collecting air samples for off-site analysis at an analytical laboratory requires QA/QC of the sampling process and handling**,** as well as the analysis of the sample."	Change made.
153	26	6	3	The items in the bulleted list are duplicated in the paragraph following the bulleted list.	The bulleted list applies to sample collection and the paragraph following applies to laboratory analysis.
154		6	3	Formatting/style: Delete the 6.3.1 sub-subheading or add a 6.3.2 sub-subheading. The general rule is that should always be at least two heading if you are going to add them.	Section 6.3.1 changed to Section 6.4.
155	26	6	3.1	Should full laboratory deliverables be provided for hexavalent chromium or PFAS analysis?	Currently, HBTVs and response levels cannot be calculated for PFAS due to a lack of adequate toxicity information for the inhalation exposure pathway. In addition, there are currently no certified air methods for PFAS. Reduced laboratory data deliverables are acceptable for hexavalent chromium for perimeter air monitoring. However, the Department reserves the right to request additional analytical information for submittal in accordance with N.J.A.C. 7:26E 2.1(a)15iii.
156	23-26	6.0 - 6.3.1	N/A	It would be helpful to clarify the submission and review process at NJDEP for the information provided. It would also be helpful to provide contacts for QA/QC at NJDEP for questions.	QA/QC information should be submitted with PAM report, which is to be provided as part of the Remedial Action Report (RAR). CSRR contacts for questions related to PAM are found at https://www.nj.gov/dep/srp/srra/srra_contacts.htm. The link with contact information is also provided in the guidance document.
157	27	7	1	For the sentence beginning with, "Confirmatory samples should be collected…" I would add "should be" between "and" and "analyzed"	Change made.
158	27	7	1	For the last sentence beginning with "If confirmatory results" I would add "is" between "or" and "negligible"	Change made.
159	27	7	2	I would change "for both volatile and particulates" to read something like, "in both volatile and particulate form"	Change made.

160	27	7	2	Real-time naphthalene monitoring is not readily available	PID, FID, and TO-16 can detect naphthalene in real-time. Due to the chemical properties of naphthalene, laboratory analysis of naphthalene is also needed to assess air concentrations and demonstrate protection of off-site receptors.
161	28	7	3	For the sentence beginning with "Given that there are currently no" I would add a comma between "monitoring" and "to"	Change made.
162	28	7	3	For the sentence beginning with, " The 0.01 fibers per", I would add a comma after the N.J.A.C. citation	Text remains as written.
163	28	7	3	Define ATSDR before using	ATSDR defined.
164	28	7	3	Comma between "include" and "at" in the last sentence.	Change made.
165	28	7	3	"After several days of data are collected" - vague and up to interpretation. Why not indicate 3 days minimum?	Changed to a minimum of 3 days to provide more detailed guidance.
166	28	7	3	For the sentence beginning with, "The PAM program to be implemented", I would add commas between "asbestos" and "or" and between "actions" and "must"	This sentence was revised. Commas are no longer needed at these locations.
167	28	7	4	Recommend attaching the Group 1 and Group 2 TXS as a table or appendix so the reader has easy access to this information. At least a link or something.	The list of Group 1 and Group 2 TXS is provided at N.J.A.C. 7:27-17.3(f). The rule citation has been added to the document and the link in the first paragraph of this section will take you to the Air Pollution Control Regulations where subchapter 17 is contained.
168	28	7	4	For the sentence beginning "On remediation sites", I would add the word "to" between "and" and "prevent"	Change made.
169	28	7	4	It would be helpful to clarify how the process will be addressed by the NJDEP Air Program and Hazard Waste Divisions. Specifically what requirements will need to be provided for the Permits under both programs, and what are the reporting requirements for the data mentioned in the PAM document.	Section 7.4 of the PAM guidance discusses requirements that fall under the purview of the NJDEP Air Program. Contact information is also provided at the bottom of this section.
170	29	7	4	Where you say, "an Odor Management Plan may be required by NJDEP Permits", I would change NJDEP Permits to state the specific office or bureau that would require the odor management plant. Air C&E?	This sentence was revised to clarify NJDEP Air Permitting Program.
171	29	7	4	The sentence beginning with "If the remediation is set to occur", includes a lot of information and does not flow well. I think this sentence would be better off broken into two parts. Maybe something like: If the remediation is set to occur in an environmental justice community (https://www.state.nj.us/dep/ej/), additional review time may be required. The same applies if an air contaminant in the air permitting risk screening process is determined to pose an elevated risk. This includes risks above 10-6 (one-in-a-million) for carcinogens or a hazard index above 1 for non-carcinogens	Text modified.

172	29	7	4	NJDEP has previously indicated that EJ would not impact site remediation activities, and this section states otherwise. Is it NJDEP's intention that a remedial action requiring an air permit will be denied in EJ areas, thus forcing RPs to take other remedial actions? How will NJDEP balance remediation of the Site with EJ?	As stated in the text, additional time may be required to process. There is nothing in the text that says denials will be issued. Air permits are not issued by CSRR. Therefore coordination with NJDEP Division of Air Quality will be required.
173	29	7	4	For the sentence beginning with, "For remediations that require" I would add the word "the" between "that" and "APC"	Change made.
174	29	7	5	Are hot spots only in relation to SRS or could one be related to another remediation standard such as soil-leachate, indoor air, etc.? Also, is it in relation to the SRS for all exposure pathways (e.g. inhalation, ingestion, migration to groundwater, etc.) or only certain SRS exposure pathways?	Hot spots would be for any media being remediated for exceedance of any standard where perimeter air monitoring is required.
175	30	7	5	For the sentence beginning with "Although less likely" I think "may also occur" should be moved from the end and placed between "chemicals" and "during"	Change made.
176	30	7	5	It is recommended that this section be reworded and more technical guidance in the form of an equation is provided. A flowchart to depict the path of information and steps taken would be useful for a reader to understand how to proceed with addressing hot spots.	A hot spot scenario presented in Section 7.5, provides a conceptual approach. It is not possible for a one size fits all equation to be provided. For every site, the location of the emissions generating activities relative to nearest site boundary and sensitive receptor location is unique. Specifically, the design of the specific method to be employed requires understanding of basic atmospheric dispersion science and meteorology. Therefore, if a hot spot monitoring is recommended, consistent with the guidance set-forth in Section 2, (N.J.S.A. 58:10C-16(c)), investigators are advised to consult with a qualified professional (e.g., meteorologist, air pollution scientist, industrial hygienist, etc.).
177	31	7	5	For the sentence beginning with "The potential for unacceptable" change the word "when" to "where"	Change made.
178	31	7	5	In the sentence beginning with "Immediately downwind" I would move "over a 15 minute period" to be between "worker" and "using"	Text remains as written.
179		Apps		In the final pdf, make sure that there are also bookmarks for each of the Appendices, including any subheadings.	Change made.
180	multiple	Apps		Delete the blue text boxes on the cover pages and within the various Appendices. Also on the cover pages in particular, Appendix seems to be in all caps throughout the rest of the Appendix but on the cover page it is First Letter Cap. Resolve so it is consistent.	Corrections made.

181	36	Appendix A	1	o "Project name" suggest change to "Site/Project Name"; o "Overview of remedial activities which have the potential for generating air emissions"; o "Estimated project schedule and schedule of active remedial actions"; o "Site map detailing the locations to be remediated and their proximity to ~~the community~~ receptors". o "Overview of COCs and associated HBTVs".	First and third suggestions adopted, second remains as written as the project schedule should already include this information.
182	36	Appendix A	N/A	It may be helpful to clarify the process for submitting the plan e.g., which Division in NJDEP will review the plan. Also, it would be helpful to include a sheet identifying the Project Manager, phone number including emergency number, other contacts, etc. for the materials being submitted. A timeframe for updating the information also needs to be included in the submittal. A plan for the submission of information and the process for review also needs to be provided in this document.	PAM plans do not require preapproval from the Department prior to implementation and are submitted along with the remedial action workplan. All remedial action workplans will go through the inspection and review process. Should there be any issues or need for additional professional judgement, the Bureau of Inspection and Review will reach out to the LSRP to resolve the matter. A final PAM report should be provided as part of the Remedial Action Report (RAR). Documents should be submitted in accordance with timeframe requirements as specified in N.J.A.C. 7:26C. CSRR contacts for questions related to PAM are found at https://www.nj.gov/dep/srp/srra/srra_contacts.htm.
183	36	Appendix A	N/A	First paragraph - it's direct oversight, not direct oversite.	Change made.
184	36	Appendix A	N/A	I would say, may commence without "Departmental" approval	Change made.
185	36	Appendix A	N/A	In the PAM Objective statement, be consistent with Section 2.	Statement is consistent with Section 2 - Purpose.
186	36	Appendix A	3	o Sampling and/or monitoring locations including figures depicting areas, relative to the ~~community~~ **receptors**, within which ambient concentration measurements will be made. The figure should also include the proposed location of the weather monitoring equipment.	Change made.
187	37	Appendix A	4	Describe how the data collected will be of known quality and appropriate for its intended use and of a quality sufficient to ~~ensure protection~~ **be protective** of human health.	Change made.
188	37	Appendix A	5	Identify and select appropriate measurement technologies and/or methods for which it can be demonstrated that the data generated will be of a quality sufficient to ~~ensure protection~~ **be protective** of human health.	Change made.
189	40 - 49	Appendix B	N/A	The text needs to clarify how potential exposures to sensitive groups such as children will be evaluated if the chemical has a mutagenic mode of action e.g., TCE. The plan to update the toxicity values also needs to be clarified in the text. A list of mutagens available on the Regional Screening Level Table is available at: https://www.epa.gov/risk/regional-screening-levels-rsls-users-guide#mutagens .	It is the policy of the Contaminated Site Remediation and Redevelopment program at this time to not apply mutagenic mode of action calculations to remediation standards and screening levels for soil and air. If toxicity value updates are needed in the future, they will be updated following the procedures for CSRR's technical guidance updates.

190	50-53	Appendix B	N/A	The lead example may require updates in the future.	Agreed but not at the present time that the Department is issuing the PAM technical guidance.
191		App B	B-2	• Fix the formatting for the various units in the table, e.g. use mg/m^3 instead of mg/m3 and µg/m^3 instead of ug/m3. Also make the same formatting fixes throughout the text of the document and review the entire document to ensure that unit formatting is consistent throughout the document (or at least that section/appendix).(e.g. on page 51 both ug/dL and µg/dL are used in the same paragraph. Generally speaking, the same formatting should be used in the tables and in the text of the document and it should be consistent throughout the entire document (or at least that section/appendix), . • In the title rows for the Inhalation Toxicity Factors Table, COMPOUND is in all caps while the rest of the row is First Letter Cap. Change COMPOUND to Compound.	Entire document reviewed for consistency and changes made. "Compound" in the Inhalation Toxicity Factors Table was also changed to "Contaminant."
192	51	App B	B-3	Delete period at the end of the 3.0 title.	Change made.
193	58	Appendix C	AP C (1)	Appendix C COMMENT 1 - FIELD GAS CHROMATOGRAPH/Purpose : Gas chromatography, specifically the Photovac Voyager, are actually very sensitive and have produced very repeatable and dependable results over the last 25 years. A newer field GC has recently been introduced into the US market as a suitable replacement to the Voyager GC line.	This section has been revised to state that investigator should confirm the sensitivity and selectivity of the instrument before use.
194	58	Appendix C	AP C (2)	Appendix C: COMMENT 2: Regarding speciated compounds comment: Should be changed to ("Typically within about 15 minutes")	No change made.
195	58	Appendix C	AP C (3)	Appendix C: COMMENT 3: As mentioned previously, recent GC Field Technology has made sample collection much easier and cheaper than in years past. This is still a bit more labor intensive with sometimes having to deal with complicated multi gas calibration gas mixes vs simple calibration gases for PID instrumentation. I feel the overall mood for GC technology can be presented in a better light with current emerging technologies that have improved dramatically for compound specific detection and use of these new instruments.	In the guidance document, the pros and cons of the more readily available monitoring methods are discussed. No preference is given to any of the methods and it is up to the investigator to choose the method most suitable for their intended purpose.
196	59	Appendix C		• Delete the "Purpose" subheading under each Monitoring Methods as it is unnecessary because it is the only subheading for each method and because it isn't really accurate (I think Description would be the better term if needed). • Fix formatting for OPEN-PATH FOURIER-TRANSFORM INFRARED SPECTROSCOPY (FTIR) so it is on a single line.	"Purpose" subheadings removed and formatting corrected.
197	N/A	Appendix C	N/A	Appendix C: FIDs and Photovac Voyagers are no longer considered industry standard, and are largely not serviceable anymore. Consider removing or supplementing this section with newer technology.	Reference to Photovac Voyager was removed.

198	N/A	Appendix D	N/A	Appendix D: Consider adding Method 325 for Passive VOC sampling.	US EPA Method 325 defines a procedure for sampling and analysis of benzene and other VOCs at refinery fence lines, and requires two-week passive monitoring. This may be too long of a duration for PAM.
199	61	Appendix E		I'm not sure if the X's in the various tables indicate that particular box is not applicable for that particular instrument or if it means that those are the required items. I'd suggest X'ing out the not applicable/not required boxes (or blacking them out) to make it more obvious. Alternatively, you could add a footnote detailing the same.	The "x" symbol in the Appendix E tables was changed to "✓" to provide further clarity. The "✓" symbol in a field indicates that item is applicable.
200	64	Appendix E	Table E-1	**Selection and** ~~Correct lamp~~ installation **of lamp with required IP** (e.g., ~~9.8,~~ 10.2, 11.7 eV)	Text remains as written.
201	69	Appendix F		• In the case study the CoC's are identified as contaminants exceeding the most stringent NJDEP Soil Remediation Standard. In light of the amendments to N.J.A.C. 7:26D a few years ago, I just want to make sure that only exceedances of Soil Remediation Standard is still accurate or if exceedance of another type of remediation standard (e.g. soil leachate, indoor air, groundwater, etc.) could identify a CoC. • Also, is it in relation to the SRS for all exposure pathways (e.g. inhalation, ingestion, migration to groundwater, etc.) or only certain SRS exposure pathways?	The case study only applies to soil where all exposure pathways are taken into account. However, the PAM guidance document pertains to multiple types of media. In addition to soil, remediation involving other media (e.g., sediment or ground water) contamination may result in contaminant releases to the air and may require a PAM plan.
202	71	Appendix F	N/A	Last paragraph on the page - what constitutes a person who has been "well-trained on the use of real-time monitoring equipment and the collection of confirmatory air samples"? This language is vague and this topic has the potential to be very sensitive in the public's eyes. More specificity is needed, if only to list training resources that NJDEP would consider would "well-train' a person. Not saying a specific cert. would be needed, but the guidance should assist the investigator in understanding who is "well-trained".	Someone who can demonstrate by education and experience that they are competent to operate and place real-time monitoring equipment. Section 2 of the guidance states "An LSRP shall not provide professional services outside his or her areas of professional competence, unless the LSRP has relied upon the technical assistance of another professional whom the LSRP has reasonably determined to be qualified by education, training, and experience. See N.J.S.A. 58:10C-16(c)."
203	74	Appendix F	Step 2	Suggest Physical Setting also provide potential sources of emissions unrelated to the Site (e.g. nearby construction, traffic on nearby public road)	While the purpose of the case study is to provide an example and identify important concepts, the PAM committee also wanted to keep it simplified so it is easier to understand and not overwhelming to the reader.
204	74	Appendix F	Table 3	Table 3, Item 1 - "Site is primarily historic backfill deposits and operations' spills that contain VOCs, PAHs, and metals. Historical fill was estimated to have been placed > 50 years ago." This is not typical industry language and is confusing. Recommend change to "Site soil COCs primarily consist of historic fill placed >50 years ago and operation-related spills/discharges of VOC, PAH, and/or metals-containing materials." It's historic fill, not historical fill. Also, VOCs, SVOCs, etc. are not spilled - materials containing some compounds in these chemical classes are spilled.	"Historical" corrected to state "historic" and "spills" changed to "discharges". No other changes made.

205	74	Appendix F	Table 3	Table 3, Item 2 - historic fill, not historical fill. "evidence of spills and elevated chemicals associated with industrial uses." What are elevated chemicals? Revise to "elevated concentrations of chemicals associated…"	Change made.
206	74	Appendix F	Table 3	Table 3, Item 3 - I don't believe SRS has been previously defined in the guidance document. Define.	Since this is the only location in the PAM guidance SRS is listed, the acronym was removed and revised to state soil remediation standard.
207	76	Appendix F	N/A	Last paragraph - the example states that the lowest HBTV and response level from the two tables is for TCE, but that's untrue - the table lists mercury as the lowest HBTV and response level. Needs to be explained or mercury removed from the table.	Additional explanation on mercury was added to this paragraph.
208	77	Appendix F	Step 4	Step 4 - first paragraph states that individual monitors for COCs is not optimal so PM10 and Total VOCs would be used, but the table from page 76 says that mercury will be monitored using a mercury-specific meter. Need to be more specific under Step 4 to be consistent with the earlier info in the example. Or remove mercury from the example.	Clarification on mercury was added to the first paragraph in step 4.
209	79	Appendix F	N/A	Confirmatory Analytical Sampling… section - not sure we need to specify use of a "NJDEP-certified **off-site** laboratory." So if the lab had a mobile lab that could come onsite and meet the certification requirements for the method, we can't use them? Seems like "off-site" is superfluous language.	For the purposes of the case study an off-site laboratory was used. If a mobile lab was available that met certification requirements for the method, it also could be used, but one was not used as part of the case study.
210	79	Appendix F	N/A	LOQ - should this be renamed to practical quantitation limit (PQL) to be consistent with all of the NJDEP's other standards? If this is changed, change the tables too wherever LOQ is used.	The references to LOQ have been eliminated from the guidance document.
211	81	Appendix F	N/A	Why is the *Speciation of Mercury in Air formatted with an asterisk and italics? Normally an asterisk links back to a table or something. Recommend the formatting is changed or an asterisk is used to link back to the table. Or make this language a footnote.	Formatting was corrected for this section.
212	81	Appendix F	N/A	"Additionally, equipment will be bump tested…. prior to the commencement of…" needs to be revised to "prior to and during" because we bump and calibrate during, not just before.	No change made.
213	82	Appendix F		Remove the yellow text box.	Text box removed.
214	83	Appendix F	N/A	First mention of using colorimetric tubes. I would discuss these in the main guidance to indicate they are approved by NJDEP for use, under what circumstances, etc.	A discussion on colorimetric detector tubes has been added to Appendix C of the PAM guidance.
215	85	Appendix F	N/A	Recommend using the same list of documentation provided on pages 85-86 on page 38 when discussing what is needed for the PAM final report so there is consistency.	The List of documentation on page 38 (Appendix A) was revised to be consistent with the list in Section 5.7.3 and Appendix F of the PAM technical guidance.

216	87	Appendix F	N/A	Second paragraph - "Before the commencement…" It's unclear how "air monitoring equipment" is defined - does it include the PID? If so, then a daily zeroing would negate a weekly bump test - how would it drift if we're zeroing and spanning it daily?	As detailed in Section 6.2 of the Guidance, bump testing and zero calibration accomplish two different goals. Bump testing is conducted to make sure the detector is responding to gas, reaching its alarm levels, and detecting the test gas within the specified calibration range. In-field (span) calibration should only be done if bump test results fall out of the manufacturer's calibration range. Meanwhile, zero calibration is the process by which a real-time monitor draws ambient air to calibrate the equipment with ambient conditions. Appendix F, bullet #4 under General PAM Plan Application has been revised to clarify this.
217	88	Appendix F	N/A	First paragraph - "Equipment calibration and QA/QC sheets be stored in an…" need to revise to "sheets **will** be stored"	Change made.
218	88	Appendix F	N/A	Last paragraph - "April 2014 document and will be documented in the daily field lo or book" need to revise "daily field lo**g** or book"	Change made.
219	71-88	Appendix F	N/A	The example is helpful but the process is unclear. The text needs to clarify the submission and review procedures before remediation can start.	PAM plans do not require preapproval from the Department prior to implementation and are submitted along with the remedial action workplan. All remedial action workplans will go through the inspection and review process. Should there be any issues or need for additional professional judgement, the Bureau of Inspection and Review will reach out to the LSRP to resolve the matter. A final PAM report should be provided as part of the Remedial Action Report (RAR). Documents should be submitted in accordance with timeframe requirements as specified in N.J.A.C. 7:26C. CSRR contacts for questions related to PAM are found at https://www.nj.gov/dep/srp/srra/srra_contacts.htm.
220	71-88	Appendix F	Table 1-1	Based on the IEUBK and Adult Lead Models used to evaluate lead, the average concentration is used in calculations. The 95% UCL provided in the Table would not be used based on the assumptions in the models.	The 95% UCL calculations are going into the Department's PAM calculator to derive Response Levels for PAM. They are not being used in the IEUBK or Adult Lead Methodology to evaluate blood lead levels.
221	71-88	Appendix F	Table 7-7	Clarify if the NIOSH value provided for lead would be used in a sensitive population such as a child receptor of concern.	The NIOSH values for lead provided in Table 7 are the flow rate of the pump and limit of quantitation for the air method. Neither of these values are dependent on the fact of whether the receptor is an adult, child, or sensitive population. They are specifications for the method. As discussed in Section 5.4, before use of an air method, the investigator should first confirm that the capabilities of the method meets the needs of the PAM plan.

222	88	Appendix G		Footnote 4: For the purposes of this technical guidance document, Semi-Volatile Organic Compounds and Volatile Organic Compounds are defined differently than as detailed in the Technical Requirements for Site Remediation N.J.A.C. 7-26E-1.8 Comment: Why are different definitions used in this guidance than the regulatory definition? This is problematic, because LSRPs are required to follow the statutes, regs, and tech guidance. If the same term has different definitions in any of these, then it will likely lead to confusion and, worst case, to enforcement issues. Consider using a different, but similar term, maybe like SVOCPAM or PAM SemiVol instead of SVOC. If you disagree or if you believe that it is imperative that the same term be defined differently, we need to discuss this before the guidance is finalized.	The footnote was removed and the definitions for VOCs and SVOCs now reference N.J.A.C. 7:26E-1.8 to maintain consistency. This change does not impact the PAM guidance.
223	88	Appendix G		For terms that are defined in regulation or statute, provide the citation with a link to that definition, but do not copy the actual definition, e.g. Contaminated site: See N.J.A.C. 7:26E-1.8.(link provided in adjacent cell in column H.) It is not a good idea to copy a regulatory/statutory definition into this guidance document as it could lead to problems, especially when there are any changes to the regulatory or statutory definitions in the future. If you believe providing the actual definition is essential, we can discuss and may be able to come up with some sort of language saying the definition is being provided as a courtesy and the user should always refer to the current regulatory/statutory definition at the given cite.	Glossary updated for terms that are defined in regulation to only include the citation with a link to definition.
224	90-91	Appendix G	N/A	The glossary terms are not all alphabetical. They also seem very random - why define VOCs and not SVOCs, PAHs, etc. Especially as part of the document talks about volatile PCBs but that is not reiterated in the glossary definition of VOCs.	The glossary was updated to have terms in alphabetical order. SVOCs and VOCs are both defined in Appendix G to be consistent with those at N.J.A.C. 7:26E-1.8. PAHs and PCBs are not defined in the PAM guidance, N.J.A.C. 7:26E-1.8, or N.J.A.C. 7:26D-1.5 but they are listed in Appendix H, acronyms, of the PAM guidance.
225	4	Appendix H	N/A	Suggest moving Appendix H to the front of the document or mention its availability earlier in the document. Alternatively, Appendix H containing the list of acronyms can be highlighted in the text.	CSRR has a technical guidance document development guide and in accordance with that guide, certain appendices (glossary and definitions) are to be at the end.
226	93-94	Appendix H	N/A	Acronyms are missing. One example, SRS.	SRS was only mentioned once in the guidance document so it was revised to state soil remediation standards. All acronyms were reviewed and guidance updated.
227	N/A	Calculator	N/A	Instead of 4 contaminants, allow multiple contaminants to be selected in one sheet. Or allow for 10 contaminants to be analyzed in one sheet instead of 4. Otherwise there will be numerous sheets to complete.	We will consider this for the next version of the calculator; however, modifying the calculator at this point is not feasible.
228	N/A	Calculator	N/A	On User Guide tab, some of the instructions are being cut off. Need to expand Column A or merge into Column B so that all information is seen.	This formatting issue was resolved.

229	N/A	Calculator	N/A	How is the Total VOCs being calculated for the Percent of Total Volatiles? Are we only using detected VOCs to comprise the Total VOCs? Are we including non-detects at, say, 1/2 the RL?	Section 5.1 of the PAM Calculator User's Guide provides instructions for determining percent of total volatiles. Only those contaminants exceeding the most stringent soil remediation standard (ingestion-dermal, inhalation, and migration to ground water exposure pathway) should be used. Contaminants with concentrations at or below the soil remediation standards would not be used in the calculation.