NJDEP Technical Guidance Document: Response to Comments

Document "Commingled Plume Techincal Guidance"

Comment Period: July 13, 2016 to August 24, 2016
Committee Chairperson: Mary Anne Kuserk, NJDEP

Comment	Page	Section	Sub-section	COMMENTS	RESPONSE
1	6	1	2	CCNJ/SRIN recommends revising the first sentence of the first paragraph to read as follows: "The purpose of this document is to provide Investigators with technical approaches to confirm the presence of a commingled plume condition, to evaluate its impacts on current and future remedial decisions, and to clarify the Department's administrative requirements for each commingled plume condition (e.g. Remedial Action Permits and Classification Exemption Areas)." CCNJ/SRIN also recommends that there be an initial statement that portions of the document (e.g. dispute resolution mechanisms) are a resource for investigators to consider, but are not technical guidance to be applied pursuant to the Technical Requirements for Site Remediation. In addition, the guidance should indicate that the existence of, and need to address, a commingled plume may be a basis to extend investigation and remediation timeframes.	The document was amended as suggested.
2	6	1	2	Define commingled plume now, don't send reader into document to figure out.	No change. Keeping the definitions together in one section is preferred.
3	6	1	2	2nd paragraph, last sentence, delete "interested", some parties may have no interest.	Considered, no change.
4	6	1	2	language should be modified to read "In all instances the Investigator and Person Responsible for…."	The document has been amended as suggested.
5	7	1	3	The Off-Site Source Ground Water Investigation Technical Guidance specifically references the Commingled Plume Guidance as a complementing guidance document in subsection 1.2. CCNJ/SRIN recommends that this document acknowledge this connection and relationship between guidances.	The Off-site Source Investigation Technical Guidance Document is referenced throughout the document.
6	7	1	1.4	As it is currently stated, the definition of a "Commingled Plume Condition" is dependent, in part, on remediation-related elements. The definition of a commingled plume should be purely technical in nature. It would also be useful to define a "groundwater plume". That is, what constitutes a "plume"?	Considered, no change. The Committee does not feel it is necessary to include this definition.
7	7	1	3	Second bullet - another common scenario is metal and PAH site related contaminants overprinted on historic fill - this should be addressed too. Examples include foundry waste on historic fill; arsenic from a petroleum release in historic fill, coal tar on historic fill etc. --- Also, maybe include discussion when site related constituents are overprinted on elevated natural background constituents.	Considered, no change. The Committee does not feel it is necessary to include another scenerio.
8	7	1	1.4	"Commingled Plume Condition", as defined in the Draft, could include a situation in which the plumes do not overlap spatially or temporally. For example, a groundwater extraction remedy for one plume might enhance the migration of another to a point of "affecting the remediation", but not cause the two plumes to become mixed (one only "encroaches upon" the other). If it is the intent of this guidance also to address such situations, it may be good to indicate so in the document. Otherwise, clarification of what is meant by "encroaches upon" may be helpful.	Considered, no change.
9	8	2	1.1	Unless Sections 2.0 and 6.0 are merged as requested in the above comment (3), CCNJ/SRIN recommends that, under the scenario termed “Contamination is migrating onto a site from an upgradient/sidegradient off-site property", the reference to the administrative process to address this should be Section 6.2, not Section 6.0.	The reference to the administrative process in 5.2 (formerly 6.2) was included.
10	8	2	1.2	Unless Sections 2.0 and 6.0 are merged as requested in the above comment (3), CCNJ/SRIN recommends that Section 2.1.2 have the same two subheadings as Section 2.1.1 (i.e. add “Contamination is migrating onto a site from an upgradient/sidegradient off-site property” scenario).	Considered, no change.
11	8	2	1.1	Ground water recovery (i.e., pump & treat) may also induce contamination from off-site areas.	No change. This is covered in Section 3.3.
12	8	2	2.1.2	The statement "….because the Investigator must determine the contribution from the on-site source versus the off-site source." is too broad and suggests that the investigator is obligated to define an "allocation" (e.g., percent of commingled plume that is the result of on-site releases).	No change. The investigator needs to determine the relative contribution of the subject site's plume within the commingled area of the plume.
13	8	2	2.1	NJBA suggests that a flow chart may be helpful to illustrate the referenced scenarios.	No change. The use of a flow chart is not appropriate since there is no “process” to describe.
14	8, 9	2	1.1, 1.2, 1.3, 1.4	These four subsections in Section 2.0 attempt to set out five or so different “commingled plume scenarios”, including where an off-site plume has different constituents vs. similar constituents as those on the site, and where the off-site plume affects only downgradient property vs. also impacting on-site conditions. Some, but not all, of these subsections refer to administrative requirements for the eight different commingled plume scenarios in Section 6.0. Addressing these scenarios in these two different sections (i.e. Sections 2.0 and 6.0) is confusing, and plume scenarios in them are not well aligned.	No change. Section 2 describes potential commingled plume scenarios and Section 5 (formerly Section 6) describes the administrative approach for various scenarios for pre and post RA permit sites.
15	8, 9	2	1.1, 1.2, 1.3, 1.4	CCNJ/SRIN recommends that the various possible commingled plume scenarios, and all of the administrative requirements applicable to each scenario that the PRCR for the subject site must conduct, be placed entirely in Section 6.0.	No change. The committee did not see value in combining the two sections.

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16	8, 9	2	1.1, 1.2, 1.3, 1.4	CCNJ/SRIN also recommends that, in each of these subsections, it be stated that "the PRCR is not responsible for contamination associated with an off-site source". In addition, the introductory sections of this document should state and make clear that "the PRCR is required to remediate only the contamination associated with the on-site source [N.J.S.A. 58:10B-12g(5) and N.J.A.C. 7:26E-3.9(b)]." (see last sentence on page 8 under Section 2.1.2). Section 6.1.1.4 (VI Contamination Unrelated to Site Being Investigated) of DEP's Vapor Intrusion Technical Guidance (Version 4, August 2016) states that, if VI contamination is from an unknown source, it is the Department's responsibility to investigate/pursue.	"Once the investigator has sufficiently established the nature and extent of the subject Site's portion of the commingled plume, the PRCR is required to remediate/monitor only the contamination associated with the subject Site's source [N.J.S.A. 58:10B-12g(5) and N.J.A.C. 7:26E-3.9(b)]" was added to the beginning of Section 2.1, which would apply to the associated sub-sections.
17	8-9	2	1.2	It should be noted that, if the source area for the on-Site plume can be remediated, then a CEA/WRA (MNA remedy) should be sufficient remedial action for the remaining on-Site plume. An RAP for Groundwater should not be required, as the case of an upgradient plume with similar contaminants flowing onto a Site is equivalent to a plume from regional historic fill: the problem cannot be abated until the off-Site plume is remediated. Further, the CEA/WRA should be lifted if and when a CEA/WRA is established for the off-Site plume, if theCEA/WRA for the off-Site plume encompasses the entire CEA/WRA for the on-Site plume.	No change. As stated in Section 2.1.2, the PRCR is only required to remediate contamination associated with the on-site discharge and the CEA/WRA needs to be established for only the component of the subject site plume (not the portion of the plume migrating onto the site). A RAP is required for only that portion subject site's plume. Also, see Case Studies 1 and 2.
18	9	2	2	To meet the definition of an unexplained increase in contaminant concentrations, the investigator should be required to demonstrate that there is no other explanation for the increase in concentration. Four lines of evidence should be required: 1) the concentration increase is not related to a high or low water table; 2) the gorundwater flow direction did not change; 3) the increase is not due to NAPL migration; and, 4) the increase is not due to a release of mass during active remediation or subsurface disturbance (drilling, construction, etc.).	Section 2.2 of the document has been amended as suggested. The suggested bullets were reordered (unexplained increases moved to end of list) and language was added to reflect the theme of the comment.
19	9	2	1.2	Unlike all other subsections under Section 2.1, Section 2.1.2 lacks a reference to some part of Section 6.0 as the relevant administrative process; it appears that the reference should be to Section 6.2. Unless Sections 2.0 and 6.0 are merged as requested in the above comment (3), CCNJ/SRIN recommends that a reference to Section 6.2 be added at the end of this paragraph.	Section 2.1.2 includes a reference to the appropriate section in 5.2 (formerly 6.2).
20	9	2	1.4	There is no guidance on how to proceed or what guidance to use, which is inconsistent with the other subsections. CCNJ/SRIN recommends that it be stated that "the Investigator should proceed with the investigation in accordance with this Technical Guidance."	Agreed. Section 2.1.4 has been amended to direct the reader to use the Technical Requirements for Site Remediation and this technical guidance.
21	9	2	2	CCNJ/SRIN recommends revising the first and second bullets to read as follows: "● The presence of contaminants that are different from the contaminants in the ground water plume under investigation (including, but not limited to, different chemical signatures consisting of multiple compounds); ● Unexplained sustained increase in contaminant concentrations in the ground water plume under investigation;"	No change. The suggested language did not result in increased clarification.
22	10	2	2	Changes in the ratios of contaminants detected in the groundwater plume and changes in geochemical conditions in the groundwater plume are insufficient lines of evidence for a commingled plume and should be removed from the bullet list. Should the committee determine that these bullet items should remain in the guidance, it should be noted that the example provided in bullet item 3 amounts to an increase in the concentration of toluene (i.e., it collapses to the scenario in the second bullet item).	No change. Contaminant ratios are not the same as contaminant increases.
23	10	2	2	Under hydrogeological information, another bullet point should be added: demonstrated knowledge of the three-dimensional migration of the core of the plume. For example, in certain instances, vertical gorundwater migration can be downards in upland areas and upwards near a surface water body. This has the appearance of two separate plumes and may be misinterpreted, unless the three-dimensional plume migration pathway is understood. Note that this requirement is not adequately captured by the "fate and transport evaluation" item in the bullet list.	No change. Increased specificity in regard to fate and transport requirements would be too prescriptive.
24	10	2	2	2nd bullet after "but is not limited to: The pre…..proximal to subject site" - ADD "and that proximal site's groundwater COCs." As flow direction is mentioned, so should contaminants here.	No change. The suggested language is already inherent in list.
25	10	2	2	CCNJ/SRIN recommends adding the following two bullets: "● Plume is much longer than analytical and/or numerical models predict (discussed later in Section 3.4); ● Plume geometry and/or asymmetry not readily explainable by pathway."	Agreed. The two suggested bullets were combined into one and added to Section 2.2.
26	10	2	2	2nd set of bullets, first subbullet under "Hydrogeological and geochemical information" maybe broken into two bullets - first: Flow direction and gradient, including vertical components; second: "Site specific hydraulic conductivity and effective porosity.	Section 2.2 was amended to include this information.
27	10	2.2		language should be modified to read "The presence/location of any known contaminated sites proximal to the subject site"	Section 2.2 was amended to include this language.
28	11	3	0	2nd PP - In situations, where …. Characteristics…" - ADD "(COC types, number of contaminants & concentration levels…)"	No change. Plume characteristics are inherent and providing examples is not necessary.

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29	12	3	3.3	I wish there was a mechanism for forcing the RP and their LSRP/consultant to address preferred migration pathways and/or historic changes in groundwater flow direction due to the use of large public supply wells, etc. In the case of at least one of my component reviews, the effect of such pumping on the ground water flow direction was not considered and the LSRP refused to investigate it.	The last sentence in Section 3.3 was modified to "The effects of active and historic pumping wells in the vicinity of the site should be evaluated for potential impact on preferential pathways."
30	12	3	3.4	Encouraging the use of computer modeling to backtrack a plume may result in the best funded investigation being the "winner" of any dispute over who is responsible for a plume. As you know, it may result in a legal battle and smaller RPs would likely be unable to afford a prolonged battle. DEP may end up being the arbitrator and we don't have the staff or expertise currently to determine who is and who isn't responsible. I'm just wondering about the wisdom of pointing them in this direction.	No change. Such methods may be needed to get to the truth. These methods are being used in the industry on a regular basis. While acknowledging the challenge, discouraging use of these tools seems counterproductive to advancing the state of the practice. The use of more advanced technologies should not be discouraged.
31	12	3	3	CCNJ/SRIN recommends adding the following sentence to the end of this subsection, given the complicated nature of the hydrogeology in New Jersey: "High resolution site characterization (HRSC)[1] programs are ideally suited to identify preferential ground water migration pathways by collecting various types of data at the scale of geologic heterogeneities. HRSC programs involve both high-resolution data collection tools and techniques, and the use of methodical sampling programs (i.e. transects or grids). Fn. 1: See ITRC's 2015 Integrated DNAPL site characterization and tools selection document here: http://www.itrcweb.org/DNAPL-ISC_tools-selection/#Welcome.htm%3FTocPath%3D."	The innovative approach is a valid tool and a new section (3.8) on high-resolution site characterization was added.
32	12	3	5	Second sentence too rosy: maybe say "Applied carefully, statistical techniques may help .." Still need to look at gw elevation-contaminant plots to look for patterns. Need caution when relying heavily on statistics.	No change. Information derived from statistical analysis is used as **one** of the lines of evidence.
33	12	3	3.3	Suggest including a separate paragraph emphasizing the high threshold of proof that may apply to fractured bedrock, where geologic controls may exert especially strong influence on contaminant migration. An appropriate example pertains to the Leaky, Multi-unit Aquifer System (LMAS) generic Conceptual Site Model applicable to Newark Basin sedimentary bedrock aquifers, as presented in NJDEP's PA/SI/RI Guidance for Groundwater. When an LMAS CSM is appropriate, tracing individual bedding-parallel aquifer sub-units intersecting wells within the commingled plume to their shallow zone of outcrop (or subcrop at the base of any overburden), and comparing those outcrop/subcrop traces with locations of known or suspected discharges, can provide a compelling line of evidence for attribution of sources. Such detailed pathway evaluation, though, requires a very accurate understanding of the bedrock structure, and investigative approaches typically used to support more simplistic CSMs (e.g., shallow/intermediate/deep aquifer unit designations) rarely develop the data needed data to support such detailed evaluation.	Such detail may not be necessary, however, emphasis is on preferential pathways whether in unconsolidated sediments or bedrock is important. The second sentence was amended to, "The presence of on-site and off-site preferential pathways (e.g., more permeable strata, buried stream channels, subsurface utility corridors, fracture and bedding planes) may influence ground water flow and result in preferential migration of contaminants that may contribute to a commingled plume condition."
34	12	3	3.4	Another line of evidence that may be used to assess commingled plume conditions, including overprinting, is vertical contaminant profiling of low-hydraulic conductivity layers in contact with contaminated aquifer units, as documented in Adamson, Chapman et al. 2015. Contaminant profiles profiles in the low-hydraulic conductivity units reflect historical diffusion and back diffusion and can be analyzed to estimate historical dissolved-phase contaminant concentrations in overlying aquifer unit at different points in time. This approach provides a surrogate for time-series water quality data, a potentially crucial element for commingled plume assessment that is often lacking. The referenced MS EXCEL-based diffusion profiling tool could have wide applicability in northern NJ, where shallow, contaminated glacial aquifer units are frequently underlain by low-hydraulic conductivity aquitards. Suggest that diffusion profile analysis be mentioned, either in Section 3.4 or 3.6, and the below-cited reference included in Appendix D. *Adamson, D. T., S. W. Chapman, S. K. Farhat, B. L. Parker, P. C. deBlanc and C. J. Newell (2015). "Simple Modeling Tool for Reconstructing Source History Using High Resolution Contaminant Profiles From Low-k Zones." Remediation Journal 25(3): 31-51.*	A new section (3.8) on high-resolution site characterization was added.
35	13	3	3.7	My experience with Conceptual Site Models (CSM), in my Milltown case and others, is that it is often abused so that the investigation never re-evaluates the established CSM despite newly acquired data that shows the CSM is incorrect. I have yet to see the use of a CSM being productive for objective evaluation of data.	No change. There is technical guidance on preparing and using a conceptual site model. It is beyond the scope of this guidance to address whether investigators use the guidance properly.
36	13	3	6	"elevated level of expertise" - not sure what this means. Maybe the investigator has the skill set, maybe investigator subcontracts. Not sure how this is any different than other aspects of remediation. If investigator does not have skill set, hire someone that does. Seeking special elevated level of expertise not readily refected in Case Studies. Appendix C handles meaning better.	It was changed to, "sufficient level of expertise."
37	13	3	7	First sentence, drop reference to "ground water" - conceptual site model may be used for all media.	The phrase "in ground water" was deleted.
38	14	3	8	CCNJ/SRIN recommends revising the first sentence of the first paragraph and third sentence of the second paragraph to read as follows: "The guidance document has provided some recommended investigation strategies for gathering the lines of evidence necessary to demonstrate the presence of commingled plumes." "Not every item on this checklist will necessarily apply to every site, and there may be other types of relevant information or potential lines of evidence that can be used that are not listed."	"Some" was added, along with "and there may be other relevant information or lines of evidence that can be used that are not included on the checklist."

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39	14	3	8	Section 3.8 refers to Table 1, which is the “Potential Lines of Evidence Checklist”. This checklist, as it is currently drafted, may hinder the PRCR in analyzing the lines of evidence. For instance, the PRCR in many cases will not know if the technical evidence gathered for another plume is reflective of current operations or historical operations of another source, or even what particular source the plume is attributable to. CCNJ/SRIN acknowledges the usefulness of Table 1, but recommends that it simply list the potential lines of evidence without qualifying them by source or historical vs. current operations.	No change. Table 1 is provided as a tool for considering and tracking potential lines of evidence in assessing potential or confirmed commingled plumes. The identiification of "data gaps," such as not knowing all of the technical evidence and/or current or historic operational history is common in these types of investigations. The investigator may use Table 1 as part of the decision making process to continuing its commingled plume investigation (i.e., employing modeling, statistical analyses, forensics, etc.) or identifying that site history/conditions are too complex for additional investigation to be beneficial. It is helpful to consider both historic and current, especially for the overprinting scenario.
40	14	4		CCNJ/SRIN recommends adding the following bullet: "● Potential input on planned remedial actions to address on-site releases." CCNJ/SRIN also recommends that a bullet be added that addresses consideration of the role and responsibility of the DEP in choosing a resolution mechanism, and the necessary coordination with the Department and other agencies in the resolution mechanism.	No change. DEP does not have a role or responsibility in choosing resolution mechanisms. DEP will only get involved via a Technical Consultation or through the Office of Dispute Resolution, as discussed in Section 5.0.
41	14 - 22	4, 5		These sections do not address subjects that a typical investigator would be responsible to administer and, as such, should not be considered technical guidance from which an investigator may be expected to document a "deviation".	Language was added to Section 1.3 to clarify.
42	15	4		CCNJ/SRIN recommends that the last sentence of the top paragraph on this page be modified so as to not be a requirement but rather a suggestion. There may be reasons why a party does not want to, or is unable to, reach out to another party and they should not be faulted for not doing so, as long as they are meeting their regulatory obligations.	“When known” was added to the beginning of last sentence.
43	15	4		CCNJ/SRIN also recommends that this section also address situations where other PRCRs associated with the commingled plume are not known, or are not legally or financially viable. For the PRCR to move forward, the specific mechanism and process for engaging the DEP to protect potential receptors from that portion of the commingled plume not associated with the PRCR's on-site source should be clarified. Re: the listed conditions, it should be clarified that these are not required for those parties that have established there is an off-site source of contamination impacting their site.	Language was added to Section 4 to clarify.
44	15	4		The idea of doing a full-scale receptor evaluation will involve a major impact on costs, particularly in the case of a PRCR performing a petroleum hydrocarbon investigation with a CVOC commingled plume. As the triggers are different for petroleum hydrocarbons relative to CVOCs (30 feet vs. 100 feet), VI investigations are triggered for compounds like TCE (screening level of 2 µg/L within 100 feet of a structure), where BTEX would not have triggered an investigation. Initiating a VI investigation, including access, field sampling, and lab cost/analysis, is very expensive, and there are many regional sources of CVOCs with background levels of TCE above 2 µg/L. The matter is further complicated if indoor subslab exceedances are present and indoor air screening levels are exceeded: reporting requirements are triggered and the PRCR is well into the regulatory loop with little chance for an exit ramp, resulting in expenditure of significant financial resources.	Language was added to Section 4 to clarify.
45	15	4		CCNJ/SRIN recommends that the Department waive certain VI requirements for certain commingled plume cases. Also, Section 6.1.1.4 (VI Contamination Unrelated to Site Being Investigated) of DEP's Vapor Intrusion Technical Guidance (Version 4, August 2016) states that, if VI contamination is from an unknown source, it is the Department's responsibility to investigate/pursue; this should be consistent between guidances.	The request for the DEP to waive a remedial requirement is beyond the scope of this guidance.
46	15	4		Similar to comment above, in that the concept of implementing an IRM for remediating, say, a fuel oil product plume from a known secondary source unrelated to the PRCR, would incur a significant cost for the PRCR. Initiation of an IRM requires reporting, on-going operations, and effectiveness evaluation, as well as additional maintenance costs. Once implemented, the most likely recovery method will be litigation, which also burdens the PRCR with even more costs. CCNJ/SRIN recommends that the Department allow for an off-ramp so the PRCR is not burdened with implementing an IRM for a third party source.	Language was added after the bullets in Section 4, indicating that you are not responsible for investigating.
47	15	4		CCNJ/SRIN recommends revising the last bullet to read as follows, in order to stay consistent with N.J.A.C. 7:26E 3.9(b): "Mitigation of any impacts or imminently threatened receptors: In accordance with N.J.A.C. 7:26E 1.12 through 1.16, if any receptors are identified that are imminently threatened or actually impacted by the COCs associated with the portion of the commingled plume resulting from their discharge, appropriate mitigation measures must be completed."	Language was added after the bullets in section 4, indicating that you are not responsible for investigating.
48	16	5		CCNJ/SRIN recommends revising the second (partial) bullet under Section 5.0 to read as follows: "…PRCR may need to complete the remediation of the portion of the commingled plume associated with their discharge independent of the other responsible parties. The benefits and challenges of this option are discussed in Section 5.2 below."	This language was added.

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49	16	5		CCNJ/SRIN also recommends that the third bullet under Section 5.0 be clarified to also include a reference to how completing the remediation independently has a significant impact on protection of receptors, and tie this condition to statements that clarify the Department's role in this case as it relates to the portion of the commingled plume associated with unknown or unresponsive PRCRs. In addition, CCNJ/SRIN recommends adding a bullet to address the resolution mechanism associated with the DEP and their role in the case where viable PRCRs are not known or do not exist.; the Department's role in potential resolution should be clarified.	Language was added to end of Section 4.1.
50	16	5	1.1	CCNJ/SRIN recommends deleting the following statement in the fourth bullet because it is not accurate: "If an IEC is identified, all parties are responsible for addressing the IEC condition." For example, if a commingled petroleum and CVOC plume is under a residential area, and an IEC for indoor air exists at a residential building but only for MTBE, then the PRCR responsible for the CVOCs is not responsible for addressing the IEC condition. Section 6.1.1.4 (VI Contamination Unrelated to Site Being Investigated) of DEP's Vapor Intrusion Technical Guidance (Version 4, August 2016) states that, if VI contamination is from an unknown source, it is the Department's responsibility to investigate/pursue; this should be consistent between guidances.	The fourth bullet in Section 4.3.1 was modified to "If an IEC is identified, all PRCRs for the commingled plume are responsible for addressing the IEC condition."
51	16	5	1.1	First bullet - maybe add something like investigating sites together may give better understanding of hydrogeology of local area more quickly.	No change. This does not result in increased clarity.
52	17	5	1.2	CCNJ/SRIN recommends revising the fifth bullet to read as follows in order to be consistent with Section 6.0: "Possible Administrative issues: Possible administrative challenges include managing multiple case numbers, dealing with different remedial timeframes, execution and submission of appropriate Department forms and fees, and overlapping and/or imbedded CEAs based on different F&T assumptions and methods."	Considered, no change. This does not result in increased clarity.
53	17	5	2	CCNJ/SRIN recommends deleting the first sentence of this subsection (i.e. "In the event that work cannot be conducted cooperatively"). While working cooperatively may be preferred, it should not be presented as a requirement. There may be valid reasons for not wanting to work cooperatively that should not reflect upon the investigator's judgment.	No change. It is a preferred approach. The wording does not require working cooperatively.
54	17	5	1.1	Next to last bullet - give some examples of one remedy having a negative impact on the remediation of another plume.	Examples will be provided during training.
55	18	5	2.2	CCNJ/SRIN recommends adding the following challenge to the list: "Potential Inability to Remediate Altogether: If a migrating plume is not addressed at the upgradient source, it may be extremely difficult, or even impossible, for a PRCR to remediate their property. In other words, if an upgradient source is actively migrating onto a downgradient property, and that source is not being remediated/controlled, it may not be possible to address the downgradient property impacts until the upgradient source is "cut off", which cannot be done independently (i.e. the PRCR for the upgradient source must participate)."	A bullet, "Impacts from off-site sources" was added to this section.
56	19	5	3.1	The following statement is potentially misleading: "If the LSRP is confident that a commingled plume condition is from an off-site known or unknown source and provides sufficient technical justification, the Department will take the lead in finding the entity responsible for the discharge or use public funds to remediate the contamination." In CCNJ/SRIN's experience, the DEP does not take the lead, and the Department's role and follow-up has not been clear or understood. The process for engaging and coordinating with the DEP, and the Department's role in this situation, should be clarified. Section 6.1.1.4 (VI Contamination Unrelated to Site Being Investigated) of DEP's Vapor Intrusion Technical Guidance (Version 4, August 2016) states that, if VI contamination is from an unknown source, it is the Department's responsibility to investigate/pursue.	The Department's role has been clarified in this section.
57	19	5	3.3	Unless Section 5.3.3 is deleted (please see CCNJ/SRIN comment 20 above), CCNJ/SRIN state that the process for LSRPs acting as arbitrators is not defined or established, including clarification of the necessary requirements or certification program. There are concerns with the implied endorsement that any LSRP can independently act as a neutral party arbitrator. This mechanism should be better defined and vetted before inclusion in the guidance.	The language in section 4.5.2 and 4.5.3 was modified to "a neutral third party (i.e., a LSRP or other technical expert)" to infer that other arbitrators besides LSRPs may assist in this capacity.
58	19	5	3.1	Make clear that at Tech Consultation, any recommendations are guidance and are not to be considered "Department approval" of any proposal or plan.	No change. Additional detail regarding Technical Consultations can be found on the Department's webpage.
59	20	5	3.5	NJDEP Office of Dispute Resolution - unless the Department is mediating/arbitrating two or more parties, does this really belong here - Section heading is "Uncooperative Responsible Entities", maybe better explain how ODR fits.	DEP's ODR's role was clarified in Section 4.5.5.

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60	21	5	3.6	Unless Section 5.3.6 is deleted (please see CCNJ/SRIN comment 20 above), CCNJ/SRIN state that this subsection states that the plaintiff may request from the Department treble damages to parties "in any way responsible for a discharged hazardous substance...". CCNJ/SRIN recommends that this language be refined to clarify the term "hazardous substance", and also clarify that this guidance is relevant to levels requiring remediation, not any level. In addition, the list of information a party should submit to the DEP in order to have the Department issue a directive includes evidence that the party entered into an agreement with the Department to remediate the site. Under SRRA, what agreement would be entered into to meet this criteria? It should be enough to establish that the party has an LSRP case proceeding. CCNJ/SRIN recommends providing clarification of this item.	The language was modified to "...persons in any way responsible for a discharged hazardous substance requiring remediation at the Site".
61	21	5.3.6		As written, the fifth component of the treble damage directive is unclear.	No change. The language provided is consistent with the information provided on DEP's website (http://www.nj.gov/dep/srp/enforcement/treble_request.htm)
62	22	6		CCNJ/SRIN recommends adding a new Section 6.1 entitled "Discharge discovered before issuance of Remedial Action Permit (RAP-GW)" in order to align/be consistent with Section 6.5 (p. 26), which addresses "Discharge discovered after issuance of Remedial Action Permit (RAP-GW)".	"If the discharge discovered before issuance of a Remedial Action Permit, see Sections 5.0, 5.2. and 5.3. If the discharge was discovered after the issuance if a Remedial Action Permit see Section 5.5.," was added to the end of Section 5.0.
63	22	6		In addition, and to the same point, CCNJ/SRIN recommends that current Sections 6.1, 6.2, and 6.3 be changed to subsections 6.1.1, 6.1.2, and 6.1.3 under the new Section 6.1. Also, these subsections should be expanded to include not only Hotline notification mechanisms, but also address issuance of RAPs, CEAs, and RAOs for the commingled plumes identified in current Sections 6.1, 6.2, and 6.3. This guidance should allow for issuance of a RAP, CEA, or RAO for only that portion of the commingled plume for which the PRCR is responsible.	These items were addressed in 5.0 (formerly 6.0).
64	22	6		CCNJ/SRIN recommends revising the fourth paragraph to read as follows: "When issuing an RAO for a case (which may involve a single discharge, multiple discharges or a full site), if a new discharge (i.e. one not at that time under investigation by the PRCR) is detected and reported as a commingled plume and the investigator can substantiate that the new discharge is not part of the case being investigated, the RAO Notice insert for the new discharge in a commingled plume can be included in the RAO to account for the contamination that will be remaining on site. The text of the RAO Notice and the subsequent responsibilities of the PRCR for the investigation and remediation of that discharge will depend on whether it emanates from off-site or the PRCR is otherwise not responsible for that discharge, as set forth in the subsections below." This paragraph, written as is, appears to combine, in a confusing fashion, the detection of "new discharges" that are the responsibility of a third party with those that may have been caused by on-site operations and, hence, would be the responsibility of the PRCR. CCNJ/SRIN also recommends that the term "RAO insert" be defined/explained, which can be done by referencing the appropriate sections of the Department's April 2016 Guidance for the Issuance of Response Action Outcomes; the term used in that guidance is "RAO Notice", which should be the same term used throughout Section 6.0 of this guidance.	The RAO notice was included to provide clarification.
65	22	6		CCNJ/SRIN recommends revising the first sentence of the fifth paragraph to read as follows: "If it is unclear that, based on all of the technical evidence available at the time of the newly discovered discharge (or evidence that becomes available within a reasonable time thereafter), the newly discovered discharge (or increase in concentrations) is unrelated to the discharge previously under investigation by the PRCR, the PRCR should assume it is related to their discharge, as the PRCR could be subject to applicable fines and penalties if no action is taken and it is later determined that the contamination was a site related discharge." This sentence, written as is, imposes a presumption that the newly discovered discharge is the responsibility of the PRCR.	"Based on all of the technical evidence available at the time of the newly discovered discharge" was added. The rest of the language is not needed. Agreed. The sentence does presume that, until demonstrated otherwise, the contamination is the responsibility of the PRCR.
66	22	6	6	2nd paragraph, last two sentences. Do these sentences mean that newly discovered contamination from a separate source that **has been** reported still represents a "new" discharge? If so, in 6.5 A thru C, why the use of "new/different discharge"? Is there a distinction that needs to be made between new & different/separate discharge? In Case Study Scenario 2,	Yes. The term was changed to "newly identified."
67	22	6	6	2nd paragraph …After the last sentence would there be any significant benefit to saying anything more about when it is appropriate to not report newly found contamination, like is described in Case Study Scenario 2, because it is believed to be from a known/reported discharge?	The administrative procedures were clarified in section 5.3.2.
68	23	6		CCNJ/SRIN recommends revising the first paragraph of this page to read as follows in order to more closely mirror those imposed by statute: "In all instances, the investigator shall ensure prioritization of the protection of public health and the environment (N.J.S.A. 58:10C-16), even when the investigator may be uncertain as to the specific source or responsibility of ground water contamination."	This sentence was revised to "shall ensure prioritization of the protection of public health and safety and the environment."
69	23	6		In addition, several of the scenarios in the subsections of Section 6.0 may not fall under the definition of "commingled plume condition", but the process set forth in these subsections still should be applicable; this applicability should be clarified.	This comment is unclear. The applicability is addressed in the beginning of the document.

Comment	Page	Section	Sub-section	COMMENTS	RESPONSE
70	23	6	1	This section requires certain actions by the property owner and assigns responsibility for the remediation. However, the discharge may be old (but newly discovered), in which case the property owner may have an innocent Purchaser defense. Alternatively, the dischagre could be caused by the Site operator rather than the owner. Finally, regardless of who is the actual PRCR, the requirement to notify the NJDEP of a dischagre is covered in legislation and the ARRCS rule. The guidance should not re-state these requirements or attempt to determine the party that is required to conduct the remediation.	No change. The section does not assign responsibility for the remediation. It addresses the requirements for notification, should specific conditions be discovered.
71	23	6	1	Re: DEP's Hotline, CCNJ/SRIN recommends providing a checklist to the operators, as well as the regulated community, which details all of the information required to be gathered during the call. Throughout the document, it states that the Investigator is required to provide all information "even if you are not prompted to do so"; this seems like an unfair and easily corrected condition. Re: the requirement that the Investigator must inform the property owner of findings, CCNJ/SRIN recommends that this guidance address the format of the notification and describe a timeframe; suggested appropriate framework would follow the requirements for notifying property owners of the results of potable or vapor intrusion sampling.	The operators will have a checklist. Each section details information that should be provided during the call. There is no requirement for a format or timeframe.
72	23	6	6.1	Another situation that might be addressed in more detail is that in which investigation reveals that remnants of an older release (pre-dating the one being remediated) require remediation. In this situation, the release being remediated overprints the older release, may consist of different chemicals and remedies for the two may be incompatible. An example is past discharges of different chlorinated solvents from a vapor degreaser during operation by two different, sequential operators. The use of the term, "new discharge" may wrongly give the impression of applying only to discharges occurring after the known discharge that the investigator is remediating. If the provisions of this section could apply also to an older, newly identified discharge, use of a different term, such as "additional discharge" or "unrelated discharge", here and elsewhere in the document may be appropriate.	The term was changed to "newly identified."
73	24	6	2	This section requires the investigator to "Identify any available information regarding proximal receptors that may be impacted …" It is recommended that "proximal" be defined as all receptors within 200 feet of the Site property boundary or the known extent of the plume. The 200 foot distance is consistent with the Receptor Evaluation requirements.	Number 6 was revised to "Identify any available information regarding proximal receptors identified in the Receptor Evaluation (N.J.A.C. 7:26E-1.13) that may be impacted (schools, child care centers, residences, etc.)."
74	25	6	3	CCNJ/SRIN recommends revising the first paragraph to read as follows: "If contaminants are encountered off the subject site during remediation of a subject site and are suspected to be unrelated to the subject site (e.g. detected off the subject site and not on, or related to, the subject site) based on multiple lines of evidence consistent with the Off-Site Source Ground Water Investigation Technical Guidance, then the PRCR at the subject site does not have an obligation to investigate the source of the contamination unless that person is also the responsible party for the source of the off-site plume." CCNJ/SRIN is requesting this clarification so it is clear to the Investigator that sufficient evidence must be presented before writing off their responsibility to clean up the contamination. Also, the intent of "unless that person is also a responsible party for the off-site property where the contamination was detected" seems unclear. Section 6.1.1.4 (VI Contamination Unrelated to Site Being Investigated) of DEP's Vapor Intrusion Technical Guidance (Version 4, August 2016) states that, if VI contamination is from an unknown source, it is the Department's responsibility to investigate/pursue.	Section 5.3 was revised to reflect that contamination was discovered downgradient of the site and on another property. The vapor intrusion part was also clarified.
75	25	6	3	CCNJ/SRIN recommends revising 4. to read as follows: "Identify that the detected unknown "off-site contamination was never detected on the subject site or available information supports the conclusion that the contamination is unrelated to the subject site." " CCNJ/SRIN is requesting this change so it is consistent with the last paragraph of Section 2.1.2 on page 9 (Contamination is detected during plume delineation downgradient of a site and on another property).	Language was modified to address this issue. Section 2.1.2 is consistent with 5.3.
76	11 and 24	3.1 and 6.2	3.1 and 6.2	These sections imply that identifying the off-Site source is necessary to claim a commingled plume condition. For example, Section 3.1.1 states "A canvass of the area, particularly in the upgradient direction of the Site (if known) can aid in determining potential off-Site sources." And Section 6.2 indicates "If the investigation conducted pursuant to N.J.A.C. 7:26E-3.9 or 3.10 does demonstrate that the observed contamination is from an of-Site source and the subject Site is not contributing to that contamination, then the person responsible for conducting the remediation..." The burden of evidence for claiming an off-Site, upgradient source is to conduct a PA and (if necessarry) an SI at the Site and to demonstrate that contaminant concentrations at the property boundary are similar to or higher than the contaminant concentrations on Site. As such, the guidance should clearly indicate in all relevant sections that identification of an off-Site source is not necessary to claim an off-Site source.	Section 3.1.1 was revised to "Once these potential sites have been identified, looking at existing data resulting from investigations at these sites can provide useful information in developing lines of evidence. "

Comment	Page	Section	Sub-section	COMMENTS	RESPONSE
77	15 - 22	5		CCNJ/SRIN recommends that Section 5.0 focus solely on the processes of the Department and its perspectives on parties working cooperatively in commingled plume investigations/remediation, and refrain from attempting to offer the Department's legal advice, legal commentary, and suggestions regarding recourse among private parties (other than such parties access to the Department's dispute resolution processes). Private party recourse is beyond the jurisdiction of the Department, and is also not its core expertise. Consistent with that, CCNJ/SRIN recommends the following deletions and changes: ● In Section 5.2.2 (p. 18), delete the bulleted paragraphs entitled "Perceived Liability" and "Cost recovery implications". ● Delete Sections 5.3.2 (p. 19), 5.3.3 (p. 19), 5.3.4 (p. 20), 5.3.6 (p. 21), and 5.3.7 Litigation (p. 21). ● Delete current Section 5.3 (p. 19); renumber current Section 5.3.1 (p. 19) as Section 5.3; renumber current Section 5.3.5 (p. 20) as Section 5.4.	These are tools and do not constitute legal advice. This issue was also clarified in 1.3, fourth paragraph.
78	25 - 26	6	4	CCNJ/SRIN recommends that Section 6.4 be moved to the end of Section 6.0, where it would be renumbered. To clarify what appears to be the clear intent of this section, we request to add the following sentence at the end of this section: "If, instead, individual contributions to a commingled plume can be differentiated (through modeling as mentioned above, or through other means), then each PRCR must establish a CEA for its differentiated plume, and such CEA can be terminated upon a satisfactory demonstration that such differentiated plume has been remediated to applicable ground water remediation standards."	The suggested paragraph was included.
79	25 - 26	6	4	In addition, with regard to CEAs for commingled plumes, the guidance should reference the CEA Guidance, and also address certain specific issues relating to the mechanics of CEA filing by acknowledging/answering the following questions: Will the Department accept the recording of multiple filings for the same CEA and, if so, what is the purpose of having duplicate CEAs?	The CEA Guidance link was added. It may not always be a duplicate.
80	25 - 26	6	4	How will the Department respond when several PRCRs file inconsistent CEAs for commingled plumes in terms of size and nature of the plumes and projected the plume duration? CCNJ/SRIN recommends that some details be provided on what it means to have multiple CEAs and the responsibility for compliance with the CEA/biennial certification requirements. The case of an unknown or uncooperative PRCR should also be addressed.	The LSRPs should reconcile their differences using the techniques provided in this document. In addition, multiple CEAs and the responsibility for compliance with the CEA/biennial certification requirements are not in the scope of this document. Lastly, language was added to 4.1 to clarify DEP's role.
81	25-26	6	6.4	To the 3rd sentence add - or found in documents referenced in the CEA form Instructions at www. …/forms/ or in future updates to NJDEP CEA administrative guidance.	The link to the form was added.
82	26	6	6.5	mentions submittal of the Remedial Action Protectiveness/Biennial Certification. However, Biennial Certifications are no longer required or reviewed. This section also implies that institutional controls such as CEA establishment is a remedial action, furthering the use of CEAs as a sole remedy. (The current version of NJAC 7:26E also includes CEAs under the definition of "Remedial Action" (NJAC 7:26E-1.8 on page 15), contrary to what the DEP has been telling the regulated community for over 15 years: that CEAs are an institutional control and not remediation). So the use of CEAs instead of actual active groundwater remediation/treatment is just a continuation of the same ignoring of the importance of groundwater quality. But then, LSRPs are not required to have any understanding of hydrogeology so it isn't a surprise that they don't understand that groundwater mingles with surface water, especially when it seems that neither does the Department.	No change. Biennial certifiations are required pursuant to the schedule in the GW-RAP. The document does not say that a CEA is a remedial action. However, in the instance where an ongoing remedial action is impacted by another discharge, it may be appropriate to use exiting data and modelling to extrapolate when applicable stabndards would have been and the remediation completed. In this case, the PRCR for the second discharge would be responsible for completing the remediation.
83	26	6	6.5	NJBA suggests that a flow chart may be helpful to illustrate the scenarios.	Considered, no change.
84	27	6	6.5.2	also erroneously implies that free product may remain and does not need to be removed for remediation to be complete, which is totally contrary to the way free product has been regulated in the past. If the DEP does not recognize that free product must be removed, then who will? I see no discussion of the recommended approach for the instance of a new release interacting with an existing groundwater contaminant to produce additional/different contaminants in the groundwater. For example, when a solvent (gasoline, dry cleaning agent such as PCE) encounters existing Manufactured Gas Plant (MGP) DNAPL containing naphththalene and other contaminants in a relatively stable layer at depth. The resulting mixture mobilizes the DNAPL. Who is responsible?	No change. The document highlights simple scenarios. Under more complicated scenarios such as one described in the comment, both PRCRs would be responsible for their own contaminants.
85	27	6	5.1	This scenario envisions a new discharge that has no negative effect on a GW RAP. If this new discharge involves new compounds of concern, then it would necessarily require that the RAP be modified to name the COC, the ongoing monitoring program be modified to include the new COC, and, in some cases, the information associated with the CEA fact sheet be modified. CCNJ/SRIN recommends describing under what circumstances would a new discharge have a minimal effect on remediation.	No change. The GW-RAP only addresses contaminaints for which the PRCR is responsible. There are many situations in which a new dischage would have a minimal effect on the remediation. For example, if the contaminants are dissimilar and do not react with one another. Another example would be if the new discharge were similar contaminants but at low concentrations compared to the initial discharge.
86	27	6	5.2	The suggestion that a RAP-GW be modified to ensure the permit can meet the requirements and assure the continued protectiveness of the chosen remedy is an unnecessary burden on the PRCR. Modifying an existing RAP-GW to accommodate impact caused by a third party seems extremely unfair as the RAP-GW should only address the PRCR's COC, just like a CEA. CCNJ/SRIN recommends that, at the very minimum, the Department modify the permit modification process to waive the fee.	No change. Waiving the fee is out of the scope of this document. It is the PRCR's responsibility to ensure that the permit is protective and monitoring the remediation. In situation where a third party may be involved, refer to Section 4 for resolution strategies.
87	27	6	6.5.1	Could an example of a minimal impact of this sort be provided the way examples are provided in the two following sections? For example contaminants from the new discharge are completely different from and have no impact on existing contaminants.	No change. Waiving the fee is out of the scope of this document. It is the PRCR's responsibility to ensure that the permit is protective and monitoring the remediation. In situation where a third party may be involved, refer to Section 4 for resolution strategies.

Comment	Page	Section	Sub-section	COMMENTS	RESPONSE
88	29	7	0	Maybe add case studies for site related contaminants overprinted on historic fill and elevated natural background conditions.	No change. This issue is out of the scope of this document and has been forwarded to the historic fill committee.
89	33	Table 1		CCNJ/SRIN recommends adding another question under the receptor evaluation section: "Are limitations required to maintain protectiveness of receptors (i.e. engineering and institutional controls, building vacant)?"	"Are there engineering controls associated with vapor intrusion or ground water contamination?" was added to Table 1.
90	37	Table 1 Appendix A		CCNJ/SRIN recommends that a pre-CEA/pre-RAP-GW example be added to Table 1, and included as a Case Study Scenario. This scenario should address a situation where there is no CEA or RAP-GW for the first PRCR's discharge when the second PRCR's discharge occurs. In this situation, the first PRCR may not have gotten to the definitive point of the extent and duration of their release when the second PRCR's release skews/blankets their data. However, the first PRCR may have enough data to compare to the second PRCR's discharge, allowing them to normalize for their discharge utilizing statistical tools, etc., and can extrapolate from their earlier data to propose a CEA and have it approved by the DEP. Guidance is needed for this scenario which would allow the first PRCR to move through the earlier remediation phase, specifically the RI, to get a CEA in-place and then be able to move onto the RA phase by utilizing their pre-second PRCR data as the starting point for projections so they can get to the scenarios in Table 1. CCNJ/SRIN also recommends that another scenario (which reflects many situations in NJ) be included in Appendix A: frequent, multi-sourced, and often deep contamination in bedrock flowing under sites where shallow releases of the same or similar constituents have occurred, but MLEs indicate very limited, if any, contribution from the subject site to the regional bedrock plumes.	No change. The tools outlined in the document are available at any point during Remedial Action. If a second PRCR's release skews the necessary data, the document describes alternative tools to address outstanding issues. The committee feels the same tools are available when there are bedrock or unconsolidated situations, or both. As such, another scenerios is not necessary.
91	29 36	6 Figure 1	5.4 Row D	CCNJ/SRIN appreciates the abeyance concept that is incorporated into the technical guidance. However, given that some abeyance situations can take many years, was any consideration given to releasing impacted parties after a certain length of time has passed? CCNJ/SRIN acknowledges that the above situation is addressed in Section 6.5.3, but for a "milder" scenario, and with fees and biennial certifications still attached. CCNJ/SRIN recommends there be a provision that, after a specified length of time (which may be case-specific depending on relative concentrations of the two releases), the remaining impacts would be the responsibility of the second PRCR, thus releasing the first PRCR from being held indefinitely to continue paying fees and submitting biennial certifications. Below is a suggested approach (see Section 6.5.3): i. Suspend sampling/monitoring in first PRCR's RAP-GW; and/or ii. Have the first PRCR continue to pay annual fees and submit biennial certifications, but only for the period listed in the RAP-GW. The biennial certification should be a simple statement noting the second PRCR's discharge; and/or iii. Terminate the RAP-GW at the end of the first PRCR's RAP-GW timeline, OR suspend the RAP-GW with no fee/biennial certification requirements until the second PRCR's discharge is cleaned up. At the end of the cleanup of the second PRCR's discharge, the first PRCR's RAP-GW is automatically terminated to avoid unnecessary attention to the first PRCR during the second PRCR's cleanup, which many take many years. For example, in the case of two releases on the same site (separated in time, with different PRCRs): Suppose that the second release is so significant that the first release cannot be addressed for, say, 10 - 15 years. At some point, it may become increasingly likely that the first release would have been remediated long ago, had it not been for the second release. Furthermore, by that time, impacts from the first release may no longer be present, and all remaining concentrations are from the second release, even though levels are now the same as the first release. Even if the second PRCR meets all regulatory and mandatory timeframes, depending on the site/release type and other factors such as extensions granted due to site complexity issues, the period of time it could take the second PRCR to obtain a RAP-GW could range anywhere between approximately 7 and 23 years (source: DEP's "Summary of Regulatory and Mandatory Timeframes for Remediation"). What if the first PRCR only has two or three years left before they would be able to terminate their RAP-GW; how reasonable is it for them to have their RAP work continue an additional 7 to 23+ years through no fault of their own?	No change. See section 5.5.3.
92	38			Case Study 1 - Not easy to read well ids, maybe enlarge map and font. Figure 2 looks identical to Figure 1. Move Case Studies towards end of document, right before acronyms - because for example Case Study 1discusses using tracer compound analysis and fingerprinting, but that does not seem to be really discussed until Appendix C. It would be helpful to read about before seeing referenced in Case Study.	Comment considered. Figures will be reviewed, and if possible, clarity increased. No other changes made.
93	43	Appendix A	Case Study Scenario 1	CCNJ/SRIN recommends that, under Administrative Considerations, the following questions be acknowledged/answered: Is the Investigator only required to monitor for the MGP-related compounds of concern in ground water? Can the investigator terminate the CEA when the MGP-related compounds meet applicable GWQS/IGWSC even if the commingled plume (tank-related) compounds of concern remain at concentrations above the applicable GWQS/IGWSC? This is also addressed in Case Study Scenario #6.	The CEA established for the site would not include TCE because it is not the responsibility of the PRCR. Language has been added to the Administrative Considerations section to reflect this.
94	43	App. A	Scen. #1	Conclusions, 4th Sentence - BTEX compounds (not just Benzene) are found in both MGP- and gasoline-related discharges.	Comment considered. Benzene is the primary driver for the cleanup. While other attributes for gasoline and MGP compounds exist, additional detail is not considered necessary. No change made.
95	49			Case Study 2 - If lead in GW was still elevated after low-flow sampling in plume area, should tracer analysis be performed to determine source of lead, i.e. historic fill or gasoline. Also, plume configurations, not consistent with GW flow direction - which may raise a flag OR maybe is missing from map.	Michael V. needs to adjust flow direction on Figure 1 to be NNW. Tracer testing not considered necessary since lead is below applicable standards.

Comment	Page	Section	Sub-section	COMMENTS	RESPONSE
96	56	Appendix A	Case Study Scenario 3	The administrative considerations under Case Study Scenario 3 allows the first PRCR to eliminate monitoring wells that have been impacted by the second PRCR's discharge from its RAP-GW Monitoring Schedule, and also allows the first PRCR to terminate the RAP-GW with only the source and sentinel wells meeting GWQS. CCNJ/SRIN recommends replacing Case Study Scenario 3 with a more complex situation where all of the first PRCR's wells are affected by the second PRCR's discharge.	No change. The additional detail suggested can be covered in training and is also discuussed in Section 5.4. (formerly 6.5).
97	61	Ap-A	CSS4	The claim "The lack of contamination noted in the vadose zone...limited the potential threat to local residents from vapor intrusion…" isn't really supported well by the data presented since .	This was reworded to include that shallow ground water was free of contamination.
98	65	Appendix A	Case Study Scenario 5	CCNJ/SRIN recommends including a higher quality copy of graphics from Microseeps.	A reference has been added.
99	58 - 62	Appendix A	Case Study Scenario 4	CCNJ/SRIN recommends that the graphics be made clearer; the figures mix results from 2D and 3D isotopic analyses but the isotopic results are not labeled, which may be confusing. The bottom (last) figure is labeled 3D CSIA but only 2 isotopes are reported (2D). Also, why have five figures if you only reference one (2b NW Area), and where is Table 1 located (it is not embedded in Case Study Scenario 4 like it is for Case Study Scenario 5)? CCNJ/SRIN also recommends expanding the explanation under On-and Off-Site Ground Water, perhaps as EPA explained in the March 2011 Tech Trends article on this site (i.e. FAMU Law School Site, Orlando, FL): "The highest concentrations of PCE (1,700-24,000 ppb) were detected in the three wells near the former uniform rental service (Table 1). The PCE in the wells have similar δ13C and δ37Cl ratios, indicating a major release of PCE from a single source. The δ13C measured in TCE at MW-1A is indicative of a manufactured TCE; the significantly different δ37Cl and the very high δ2H also support a manufactured source of TCE in this well. However, the ratios measured for TCE in MW-1D indicate some biodegradation of PCE is occurring. The lighter δ13C, similar δ37Cl, and low δ2H suggest biodegradation."	New figures and a new table was included.
100	58-62	App. A	Scen. #4	This section is difficult to follow; especially the CSIA description and examples. The various figures comprising Figure 1 are not clearly explained.	Figures and a table were added to clarify.
101	63-67	App. A	Scen. #5	While the CSIA results indicated that TCE in the upper and lower zones were from different releases, it is not obvious from the description that there are different spatial sources (onsite & offsite); as opposed to two temporal sources (both onsite).	A sentence was added to indicate that additional MLE were needed.
102	Appendix A	Appendix A		These Case Studies will be used as examples LSRPs and PRCRs can rely on for commingled plume determinations and remediation of the on-Site portion of commingled plumes. As a result, they need to show the strongest possible evidence of commingled plumes. Case Study 2 is a good example, though it would be useful for Figure 1 in that Case Study to show concentrations of a selected contaminant for all on-Site and off-Site wells. Case Studies 5 and 6 also offered sufficient evidence of commingled plume assessment. Case Studies 1, 3, and 4 were less convincing and should be deleted from the guidance.	Comment considered. No change.
103	Figure 1	Figure 1		Under Scenario C, the PRCR is to request a RAP abeyance but should continue to pay fees and submit biennial certifications until the initial plume is extrapolated to meet applicable standards. This is reasonable, unless the PRCR for the new (off-Site) release establishes a CEA/WRA that encompasses the entire CEA/WRA footprint of the on-Site plume. In that case, the LSRP should issue an RAO for the on-Site plume, with the conditional language about contamination remaining on Site.	No change. The initial PRCR can not lift the CEA or terminate the Remediation Action Permit until the duration of the original CEA has passed regardless if a CEA has been issued to the new discharge.
104	NA	NA		Make it clear early in the document that the phrase "remediation of a subject site" is being used as a generic term that encompasses all aspects of site work (i.e., assessment, investigation, design, remediation, etc.).	No change. The definition of "remediation" per the Tech Regs already includes all of the steps mentioned.
105	NA	NA		It should be stressed throughout the document that the responsible party is required to define the boundaries/limits of their groundwater contamination that is not co-mingled with another plume, and that determining the location of the contact boundary between the two plumes is critical to a proper assessment of site conditions. It should be pointed out that determining the contact boundary between the two plumes will likely require a greater density of groundwater data points than a single plume situation.	Considered, no change.
106	NA	NA		When groundwater contamination attributed to another site, or an unknown source, is detected in a site well (on-site or off-site), the information generated from that well facilitates the determination of the source and delineation of the non-site related contamination. When non-site related contamination has been confirmed, the Department (who ?) should be promptly contacted to discuss future use/responsibility of the impacted well(s). Wells showing non-site related contamination should not be abandoned without approval from the Department.	No change. The DEP is currently working on this issue, however, it is not in the scope of this document.

Comment	Page	Section	Sub-section	COMMENTS	RESPONSE
107	NA	NA		Where similar contamination from different RPs is found to be commingled (i.e., BTEX commingled with BTEX, or TCE commingled with TCE), groundwater data needs to be collected from both the non-commingled portion and the commingled portion of the plume that shows the magnitude and gradient of the groundwater contamination. The determination of this information is critical as the entity responsible for the higher contaminant concentration within the commingled portion of the plume will be considered responsible for the delineation and remediation of the contamination at and downgradient of that commingled area.	No change. The DEP is currently working on this issue, however, it is not in the scope of this document.
108	Appendix A	Appendix A		Appendix A Case Study 1 about the MGP site is an example of what is usually wrong with many ground water investigation (the topic of this document being ground water). Soil samples were collected to determine the contamination present at the AOCs instead of ground water samples. Some of the site soil investigation is relying on odor to differentiate between the gasoline impact and the MGP impact (top of page 40). The soil samples were not analyzed pursuant to NJAC 7:26E-2.1 (Table 2-1). BTEX is not the same as analyzing for VOCs. Styrene is an MGP indicator, as is ammonia, which would not be evident in soil. The description of the monitoring well installation/groundwater sample collection relevant to AOCs (page 40) is also somewhat irrelevant given that ground water flows from one AOC to another. The locations should be described relevant to flow direction (ie. Down or upgradient) of the significant source locations (gas holders and USTs, which are not even depicted in Figure 1, which is totally unacceptable). The ground water results indicate TCE and it is repeated that “historic operations and product inventory” do not indicate TCE used at the site (page 40). However, degreasing agents used on all the MGP machinery and in the auto repair shop present at most gasoline service stations, do contain chlorinated solvents and are often found in groundwater at MGP and gasoline service station sites.The statement that there are no receptors ignores that ground water is a receptor (page 41). I consider the selected “remedy” to be inadequate. What about the daughter products resulting from MGP residuals mixing with gasoline and other solvents? Although the gasoline is driving the plume, the DNAPL was an MGP residual that was not addressed for a century. The CEA & deed notice, and surface cap do NOT address the plume migration offsite. I would not approve of this so-called “remedy”. Minor errors: On page 38, the phrase “Coal Manufacturing” should be changed to Manufactured Gas Production. Coal is mined, not manufactured. On page 42, two typos: “Using Section 5.0 of this document, the Investigation decided to continue to work independently and move the project through there remedial process” should be “the Investigator …….project through the remedial process”.	No change in GW flow arrow. "The examples are for illustrative purposes only" was added to the begining of Section 6. "Coal Manufacturing" was changed to "Coal Tar." "Investigation" was changed to "investigator." BTEX was changed to "volatile organic compounds (VOCs)."
109	General	General		This guidance should expressly identify that many commingled plumes give rise to complexity and uncertainty in terms of investigation and remediation. Some uncertainty may be unavoidable in making decisions about commingled plumes, and it will be rare that some conflicting data or evidence will not be present. Investigators should employ a "weight of the evidence" approach to decision-making, recognizing that complexity and some uncertainty are unavoidable.	No change. This concern is already expressed throughout this technical guidance document.
110	General	General		General: NJBA encourages the Department to remove procedural hurdles and establish simplified administrative mechanisms, especially for brownfield redevelopers, to encourage the different parties to coordinate their responses to commingled plumes. This increased flexibility will reduce compliance time and incentivize collaboration amongst remediating parties; which the guidance states is the Department's preferred approach.	No change. These concerns are outside the scope of this document. The Department does state in the document that it encourages PRCRs to work cooperatively. No change.
111	General	General		General: NJBA strongly recommends that the Department provide relief from some regulatory and mandatory timeframes in cases where a party is responding to sources for which that party is responsible and the weight of the lines of evidence supports the conclusion that the plume resulting from such sources is not the plurality of the commingled plume (i.e., the plume resulting from those sources is overwhelmed by one or more plumes from other sources).	No change. These concerns involving compliance and enforcement issues are beyond the scope of this guidance document.
112	General	General		General: NJBA recommends that the Department provide greater flexibility as to the timing and scope of VI studies, IEC response and Receptor Evaluations in those cases where the weight of evidence suggests that the party responding to the commingled plume is not responsible for the majority of the plume.	No change. These concerns involving compliance and enforcement issues are beyond the scope of this guidance document. However, contact the IEC group currently in the Bureau of Environmental Measurement and Site Assessment.
113	General	General		General: NJBA supports the comments submitted by SRIN/Chemistry Council and encourages the Department to consider their technical issues and recommendations.	Comment noted.
114	General	General		General: NJBA supports the comments submitted by SRIN/Chemistry Council and encourages the Department to consider their technical issues and recommendations.	Comment noted.