NJDEP Technical Guidance Document Review Form

Document: *"Ecological Evaluation Technical Guidance Document Version 1.4 "*

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Comment #	Page	Section	Subsection	COMMENTS
1	12	4	NA	Regarding the "Biotic Zone" definition, although 0-6" below ground surface (bgs) is standard for consideration of the biotic zone of soils, the variability in surface waters and nature of sediments makes that depth interval much less consistent for sediments. Additionally, exposure to burrowing animals is more likely due to life history attributes of the burrowing animals than to the depth of the biotic zone, and would not normally be a consideration in determining the depth of the biotic zone. Please consider revising the last sentence to read as follows: "This zone is generally related to the 0-6" interval for both sediments and soils, however, it may be less than 6" or it may extend to deeper intervals in certain habitat settings."
2	16	4	NA	The definition of "sediment" is sufficient for the general understanding of the term, but further clarification may be useful (in an appropriate section) in the context of the biotic zone and ecological evaluation. As defined, the "consolidated" substrate beyond the biotic zone is not sediment and is not ecologically relevant in aquatic systems, if contaminant migration pathways do not exist. For the purposes of vertical delineation/characterization beyond the "sediment" layer or the biotic zone (whichever is thicker), a clarification will be beneficial with respect to the appropriate ecological screening benchmarks (sediment vs. soil) to use, if any. It is requested that the extent of sediment in an ecological context be left to the judgement of the investigator (e.g. the biotic zone). While the sediment environment can be subject to change more frequently than soils, it should be clarified that deeper sediments that are essentially parent material are distinguished from the relatively recent, shallow biotic zone sediments, and not representative of an exposure zone.

3	27	5	3.4	While the minimum number of samples (for surface water, sediment, and soil) recommended is three to five, much of the discussion on the use of statistics (e.g. 95% Upper Confidence Limits (UCLs) and outlier evaluations) for the calculations and use of the background concentrations is predicated upon achieving a sufficient sample size (e.g. n=7). It is unclear when a larger sample size may be considered or recommended so that these statistical approaches can be used.
4	27	5	3.4	It is unclear why background samples for ecological evaluation would need to be collected at depth intervals beyond 0-6" (beyond the biotic zone). Further clarification with specific examples may be useful in considering when to collect background samples at these depth intervals.
5	50	6	1.3.3	While the NJDEP allows use of Toxicity Reference Values (TRVs) with justification, three tiers of TRVs are provided; however, the specific purpose of these tiers is not clear. The tiers appear to represent the level of confidence that the NJDEP has in the TRVs and, hence, the likelihood of their approval. The tiers also appear to represent a hierarchy for the selection of TRVs and the approaches to refine the TRVs at different tiers of ecological evaluations. Further clarification is required in the recommended approaches for the selection and/or refinement of the TRVs.
6	50	6	1.3.3	Requiring use of the Passaic River Focused Feasibility Study (FFS) TRVs as Tier 1 TRVs presumes that the FFS TRVs are appropriate for use at all sites, which may not be true. First, the FFS TRVs were developed for specific receptor species (great blue heron and mink) which may or may not be appropriate receptor species at other sites. Second, as demonstrated by the number of comments on the FFS TRVs that the USEPA received during the FFS public comment period, there is considerable professional disagreement on the appropriateness of the FFS TRVs. Specific criticisms of the FFS TRVs included: (1) use of extrapolation factors to develop benchmarks lower than effect concentrations reported in the literature; (2) use of field studies to derive TRVs where cause-effect relationship between chemical and non-chemical stressors and adverse effects difficult to identify; (3) use of chicken reproductive data when accepted that chickens are overly sensitive to certain Contaminants of Concern (COCs) and, therefore, that chickens are not suitable for estimating effects in native populations; and, (4) use of lab exposures involving topical applications and gavage exposures not relevant to estimating field conditions. The ecological risk assessor should be allowed to use professional judgment to determine which TRVs are appropriate for a site given site-specific receptors and conditions.
7	50	6	1.3.3	Ecological Risk Assessment (ERA) is a quantitative assessment of the actual or potential impacts of Contaminants of Potential Ecological Concern (COPECs) from a contaminated site on wildlife and plants, and an ecological risk assessor performs this quantitative assessment. The NJDEP states that utilizing the Tier 1 TRVs will not be subject to further scrutiny during the Site Remediation & Waste Management Program's inspection and review process if selected and used in the ERA. This removes the ecological risk assessor's ability to use professional judgment in the selection of the TRVs and will lead to more stringent remediation goals for a site that may be outside of the Lower Eight Miles of the Passaic River.

8	50	6	1.3.3	Default TRV screening values may be useful for a preliminary ecological screening model; however, the use of the values applied to the Lower Passaic River for all ERAs seems to negate the whole premise of a site-specific ERA. ERAs are meant to be site-specific, allowing the technical expert to apply professional judgement based on their knowledge of site conditions. It would seem that application of values applied to the Passaic River for all ERAs defeats this purpose. If default TRVs are going to be provided for use by the risk assessor, default TRVs for all constituents that present a food chain transfer concern should be made available instead of only constituents that present an ecological concern within the Passaic River. Additionally, any default TRVs provided by the Agency for use in an ERA should consider other major sediment sites throughout the United States in the development of the values, and all rationale and basis for their selection should be provided especially if the risk assessor is required to provide justification of alternate non-default values. It is understood that the use of the Tier 1 TRVs would be unconditionally accepted by the NJDEP but may be used as a conservative screening tool. Please consider supplementing the text to indicate that the Tier 1 TRVs are not considered as mandatory, and represent one of three TRV selection criteria.
9	50	6	1.3.3	For a contaminated site that utilizes the Tier 1 TRVs for all contaminants, the ecological risk assessor demonstrates that all exceedances of the Tier 1 TRVs are also above background/reference levels and concludes that no further ecological evaluation is required; will the NJDEP accept the conclusions of the LSRP?
10	50	6	1.3.3	Are ERAs that were submitted to the NJDEP to comply with the May 2014 and May 2016 statutory timeframe for Remedial Investigation which utilized TRVs from the USEPA (i.e. 2018 draft - Tier 2) considered incomplete since Tier 1 TRVs were not utilized for a site located on the Lower Eight Miles of the Passaic River or anywhere on the Passaic River?
11	50	6	1.3.3	Are ERAs that were submitted to the NJDEP to comply with the May 2014 and May 2016 statutory timeframe for Remedial Investigation which utilized TRVs from the USEPA (i.e. 2018 draft - Tier 2) considered incomplete since Tier 1 TRVs were not utilized for a site located outside the Lower Eight Miles of the Passaic River?
12	50	6	1.3.3	The paragraph regarding Tier 2 TRVs is unclear. Specifically regarding the part that begins "However, Eco-SSLs may have been derived for select contaminants from the geometric mean…." to the end of paragraph, we are not sure what is being requested. Is it wrong to select the geometric mean and, if so, why? Are you saying to use "an appropriately conservative LOAEL" instead of the geomean based on No Observed Adverse Effect Levels (NOAELs) as the TRV NOAEL? In the last sentence of the paragraph regarding Tier 2 TRVs (i.e. "If TRVs other than these were used by USEPA to develop the Eco-SSLs, then those TRVs should be used."), it is not clear what is meant by "these" and "those".
13	50	6	1.3.3	The Eco-SSL documents referenced in this section have identified soil screening criteria based on toxicity studies (laundry lists of approved studies) that suggest less conservative TRVs are just as applicable as those used on the Passaic. The guidance suggests that the TRVs on Table 1 should be used in ERAs strictly based on the fact that the USEPA, USFWS, NOAA and NJDEP approved them for use on the Passaic, but that TRVs should be established by the risk assessor from the Eco-SSLs documents for all other COCs not listed on the table. It appears that the TRVs noted on Table 1 are the lowest of all possible values approved by the USEPA in the Eco-SSL documents for these select COCs. However, the USEPA did not imply that all other studies considered in the development of the Eco-SSLs were obsolete and inappropriate. That said, why would PRPs in NJ be asked to use the most conservative of many agency-approved studies just because the approach was applied to the Passaic? Selection of the lowest TRVs does not make it a valid, scientific approach for all sites. The Passaic is a unique system and it seems inappropriate to suggest that these TRVs should be applied across the board especially when it comes to development of an eco-risk based cleanup number.

14	50	6	1.3.3	For a contaminated site that is located on a tributary of the upper Passaic River and utilizes the Tier 2 TRVs for all contaminants, the ecological risk assessor demonstrates that the Tier 2 TRVs are appropriate by using multi-lines of evidence and concludes that no further ecological evaluation is required; will the NJDEP accept the conclusions of the LSRP?
15	50	6	1.3.3	The approach to the third tier for TRV selection seems to contradict the USEPA's approach as noted in the Eco-SSL documents. In several cases, the geometric mean was used by the USEPA in development of the Eco-SSLs using multiple studies across different receptors. Therefore, incorporation of a policy that suggests the geomean should not be derived across different receptors implies that the science used by the USEPA is incorrect.
16	50	6	1.3.3	Per Tier III requirements, note that the Lower Passaic River study by Culp, et al (2000) for High Molecular Weight Polycyclic Aromatic Hydrocarbons (PAHs) was among those rejected by the USEPA. Please consider the use of an alternative TRV (e.g. Tier II Eco-SSL) for any based on rejected studies, as required by the Tier III TRV guidance.
17	50	6	1.3.3	Tier III: For literature-derived TRVs, it is recommended that the NJDEP develop a publically accessible database of TRVs approved by the NJDEP for various sites.
18	78	6	4.5	Regarding Extractable Petroleum Hydrocarbons (EPH), it is suggested that the NJDEP revise language where the text states "NJDEP has not established an ESC for sediment" since the NJDEP's EPH guidance is written based upon the method "Analysis of Extractable Petroleum Hydrocarbon Compounds (EPH) in Aqueous and Soil/Sediment/Sludge Matrices" (NJDEP EPH Method Revision 3). No distinction is made regarding the EPH guidance ecological screening criterion of 1,700 parts per million (ppm) being applicable only to soils and the title indicates it does apply to sediment. The EPH guidance states that 1,700 milligrams per kilogram (mg/kg) criterion applies to ecological areas, e.g. wetlands, etc., which would logically, and often do, include wetland sediments. The last sentence in this section regarding PAH assessment should reference sediments. Also, "If EPH is identified..." requires clarification, e.g. "identified" is subjective and not defined. The text as-is seems to imply that any EPH detection warrants evaluation of PAHs. Please consider adding a definition of "Ecological Remediation Goal", as this is a heretofore unidentified term.
19	84	6	4.9	In the paragraph with "However, it is appropriate to delineate historic fill impacts in an offsite ESNR if the historic fill is not regional or if the historic fill is regional but contaminant source attribution is uncertain (i.e., …)", what is meant by "regional"?
20	84	6	4.9	Please confirm the following: If historic fill is identified as regionally, the only Area of Concern (AOC) for the contaminated site, there is no additional contribution from the Responsible Party (RP), and the AOC is located adjacent to an Environmental Sensitive Natural Resource (ESNR), then the RP is not required to delineate the historic fill beyond the property boundary.
21	84	6	4.9	Please confirm the following: If historic fill is identified as regionally, the only AOC for the contaminated site, there is no additional contribution from the RP, the AOC is located adjacent to an ESNR, and there are no contaminants above ECO Soil Screening Levels that impact the ESNR, then the RP remediates the historic fill with a presumptive remedy.

22	84	6	4.9	Please confirm the following: If historic fill is identified as regionally, the AOC for the contaminated site, there is no additional contribution from the RP, the AOC is located adjacent to an ESNR, and contaminants are above ECO Soil Screening Levels that impact the ESNR, then the RP conducts an ecological evaluation to determine if a presumptive remedy can be utilized.
23	84	6	4.9	Please confirm the following: If historic fill is identified as regionally, the only AOC for the contaminated site, there is no additional contribution from the RP, the AOC is located adjacent to an ESNR, and contaminants are above ECO Soil Screening Levels and are also above background/reference levels that impact the ESNR, then the RP remediates the historic fill with a presumptive remedy.
24	84	6	4.9	Please consider revising the text "…bank stabilization would be an example of an appropriate remedial action" in the last sentence of the last paragraph of this section as follows: "...bank stabilization would be an example of an alternative remedial action". While we recognize the NJDEP is providing an example, we are concerned that this text, as currently written, could be interpreted as a prescriptive requirement for such situations and may be strictly applied as a default requirement.
25	86	7	NA	Please consider adding a definition for "Risk-Based Remediation Goals", which appears in the section's title.
26	88, 89	7	3	This section implies ecological remediation goals can only be defined by Ecological Screening Criteria (ESC), background, or site-specific risk-based goals using biological test data. This list seems narrow and implies biological data (e.g. tissue data or toxicity testing) is required to be collected as part of an ERA to develop a risk-based goal. Dietary models are often used in risk assessment to quantify risk and to develop remediation goals without gathering biological data from the site. The last part of this statement (i.e. "which are determined from biological test data collected in accordance with Section 6.0") should be removed. As noted in our earlier comment, the site-specific definition of "sediment" should be subject to professional judgement of the investigator. Application of sediment ESC is more appropriate for recent deposits (e.g. biotic zone).
