NJDEP Technical Guidance Document Review Form

Document: ***Draft Alternative Remediation Standards Technical Guidance for Ingestion-Dermal and Inhalation Exposure Pathways for Soil, Version 1.0***

Comment Period START: Monday, June 1, 2020
Comment Period END: Monday, July 13, 2020

Send all Comments to : Sana.Qureshi@dep.nj.gov and Allan.Motter@dep.nj.gov

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Comment #	Page	Section	Subsection	COMMENTS
				General
1	6	2	2	The NJDEP imposes Remedial Action Permit requirements upon most deviations from the proposed remediation standards without justification or evaluation of the financial burden for a permit. The NJDEP should discuss the oversight requirements and associated direct costs to monitor the oversight of an LSRP at a site with an institutional control. As an example, an employee at $80,000 per year costs needs to only monitor 145 permits each year at a fee of $550.00 per permit per year. The fees seem excessive and punitive.
2	6	2	2	The guidance document does not provide any guidance regarding how the regulated community will utilize the two separate remediation standards (Ingestion-Dermal and Inhalation) within the Technical Requirements for Site Remediation (7:26E). The guidance should state the Ingestion-Dermal pathway is most relevant to the Direct Contact standards and the associated investigation activities as described in 7:26E. The Inhalation remediation standard would apply for delineation and site characterization in the Remedial Investigation phase, but should not be a basis to determine attainment of site remedial goals.

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3	6	2	2	The guidance document assumes the "Investigator" is knowledgeable of the USEPA risk assessment process, the technical jargon and the differences between the NJDEP's perspective on remedial attainment verses the USEPA risk assessment process. The initial section of the guidance should be expanded to include a description of the NJDEP's policy and practice on the use of each remediation standard pathway and the SI/RI/RA/RAO process. Specifically the Tech Regs reference specific actions that are required when an exceedance of the Direct Contact remediation standards are observed. With the NJDEP's designation of multiple remediation standards based on multiple pathways, a clear description of the applicability of each standard would provide valuable guidance to all investigators. As one example, the NJDEP should clearly define that the Ingestion-Dermal remediation standards will be used in place of the term "Direct Contact" in the Tech Regs.
4	6	2	2	The guidance document assumes the "Investigator" is knowledgeable of the USEPA risk assessment process, the technical jargon and the differences between the NJDEP's perspective on remedial attainment verses the USEPA risk assessment process. The initial section of the guidance should be expanded to include a description of the NJDEP's policy and practice on the use of each remediation standard pathway and the SI/RI/RA/RAO process compared to the USEPA's Screening Level (RSL) concentrations. CCNJ/SRIN envision a side-by-side comparison table that presents the USEPA's RSL values and the NJDEP RS values, both used for site characterization and determination of the nature and extent of contamination using point-by-point compliance. Once the site is characterized and the RI is completed, the USEPA encourages site specific evaluations of site use, exposure scenarios, chemical characteristics and physical characteristics of the site. The default NJDEP evaluation is to continue a point-by-point comparison of all sample results throughout the RA and RAO phases. A description of the NJDEP's policies and guidance on attainment alternatives that are not based solely on point-by-point compliance is necessary for the Investigators and the regulators.
5	7	3	0	Although the NJDEP's calculation tool is referenced, a search of the webpage site does not find the calculator. Stakeholders cannot effectively replicate or validate calculations or evaluate the guidance document without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator). We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately.
6	8-9	4	1-2	Ingestion-Dermal and Inhalation Exposure Pathway Basis and Background documents are not available for review and comment. It is critical for stakeholders to understand how the NJDEP is utilizing the input parameters to calculate the ingestion-dermal and inhalation standards for residential and non-residential in order to provide meaningful feedback. By understanding the input parameters, the LSRP and PRCR can develop ARS for their sites. Without the guidelines used by the NJDEP, such ARS are not likely to reach concurrence. We are requesting the release of these documents to be reviewed and commented on appropriately.
7	12	4	3	The NJDEP states: "The LSRP should understand the purpose and intent of this guidance, investigators developing the ARS should be experienced in the use of techniques and methodologies of risk assessment (USEPA 1989)." However, the guidance document provides no discussion of exposure domains or evaluation of a reasonable exposure concentration. A reader is left to assume all samples must be evaluated against single-point compliance concentrations, without any evaluation of fate, transport or exposure potential to a receptor. The NJDEP should include compliance attainment guidance for these new exposure standards.

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8	13	5	1	There is a reference to the NJDEP's calculation tool but a search of the webpage site does not result in any finding of the calculator. How can stakeholders effectively evaluate the guidance document without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator)? We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately.
9	13	5	1	The NJDEP references that different models used by the USEPA will be evaluated on a case-by-case basis. The NJDEP should clarify what parameters will determine a positive outcome for the use of an USEPA model and a negative outcome. In other words, what is the basis for the NJDEP's decision to accept or reject an ARS developed, evaluated and proposed by an LSRP? Identifying these variables would assist the regulated community in developing practical and protective ARS criteria.
10	14	5	1	The NJDEP states the variables of averaging time, exposure frequency, exposure duration, exposure time, soil ingestion rate and soil adherence factor "represent reasonably conservative default values (but not the worst case)" scenario. The NJDEP should include a discussion of the parameters that constitute a "worst case" and the mathematical variance of the worst case parameters vs. statistical terms that are utilized by the USEPA and other agencies; i.e. 90% Upper Confidence Level (UCL) values, mathematical mean values, spatially weighted average values, etc. The use of nondescriptive terms such as "worst case" will avoid ambiguity and support reasoned evaluations of the risk to human health and the environment. Table 1 should be amended to include the mathematical description of each parameters and assumption; e.g. Residential Exposure time represents >95% UCL (350 days of 365 days per year).
11	14	5	1	The document states, *"[t]he default parameters for the residential and non-residential land use for these pathways include averaging time, exposure frequency, exposure duration, exposure time, soil ingestion rate and soil adherence factor. The Department has determined that these variables represent reasonably conservative default values (but not the worst case) and are designed to be consistent with Superfund's concept of the RME protective of the majority of the population".* The NJDEP limits the default parameters and ultimately calculates two (2) SRS categories (residential and non-residential). Other states incorporate additional default exposure pathways, which clearly provide more reasonable default values. For instance, Pennsylvania and Massachusetts have three (3) default soil standard categories and New York has five (5). The NJDEP should consider additional default parameters (average time, exposure frequency, exposure duration, etc.) for the development of additional default SRS categories.
12	14	5	1	The Department should provide its rationale for applying default parameters, such as average time and exposure frequency, in calculating residential ingestion-dermal contact SRS for soils deeper in the soil column. What is the Department's justification for applying the same default parameters and exposure scenarios to establish residential ingestion-dermal contact SRS for soils zero (0) to five (5) feet and for soils deeper five (5) feet; or deeper than fifteen (15) below ground surface? The default parameters should be adjusted based on depth of the soil.

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13	16	5	2	The NJDEP appears to arbitrarily control the use of an ARS without justification or reason. As described in the guidance document, "All inhalation exposure pathway ARS options involving alternative land use require prior approval by the Department; however, ARS options utilizing site specific physical parameters do not require approval by the Department." The NJDEP should clearly state the parameters and rationale which will be used to evaluate ARS proposals.
14	16	5	2 et al	The NJDEP does not provide the qualifications, experience and knowledge required by the Department reviewer to determine if an Alternate Remediation Standard is approved. Understanding the qualifications and experience for the decision maker is important for the LSRP and PRCR to prepare a responsive ARS request package. All LSRPs are closely monitored, tested, retrained, and audited by their peers. The NJDEP should implement a similar program to identify the staff who have presented the knowledge and experience to qualify as "technical reviewers" of a submittal from an LSRP.
15	16	5	2.1	There is a reference to the NJDEP's calculation tool but a search of the webpage site does not result in any finding of the calculator. How can stakeholders effectively evaluate the guidance document without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator)? We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately. Sections 5.2.1 to 5.2.2 refer to the calculator.
16	16	5	3 et al	The NJDEP should define the Staff Positions or the Job Titles for the personnel who will review all ARS proposals. What are the key skills that are necessary for the DEP to determine the acceptance of an ARS proposal by an LSRP.
17	18	5	2	Figure 1 graphically demonstrates the impracticality of the concept that the NJDEP will evaluate Alternative Remediation Standards as viable options to evaluate site specific details. Within the flow chart all Residential properties, School properties, Childcare properties, Commercial properties and Industrial properties are disallowed from using site specific land use information. The properties where ARS conditions are acceptable are a very, very small percentage of the land use in New Jersey. The NJDEP should provide an evaluation of the potential land area that may be affected by these alternative land use scenarios. I would estimate these land use scenarios could affect substantially less than 1% of all site remediation projects.
18	18	5	2	Figure 1 graphically demonstrates the impracticality of the concept that the NJDEP will evaluate Alternative Remediation Standards as viable options to evaluate site specific details. Within the flow chart all Residential properties, School properties, Childcare properties, Commercial properties and Industrial properties are disallowed from using site specific land use information. The NJDEP should expand the definition of "Land Use" beyond residential and non-residential. It is very common to have mixed land use with retail shops on the first floor and residential use on the upper floors. Mixed use (ground floor commercial/upper floor residential), industrial lofts, and condominiums are residential land uses that should be considered under a “restricted residential scenario” that limits exposure via homeowners associations, deed restrictions, or other mechanisms that prevent disturbance to subsurface soils and limits grounds maintenance to workers. In addition, the majority of planned developments import surface soil for landscaping purposes which would further limit the potential exposure to soils under the restricted residential scenario. The automatic dismissal of alternative land use options for residential, commercial, and industrial properties limits the value of the ARS. This type of land use will become increasingly common and should be allowed and discussed within this guidance document.

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19	18-28	5	2.1.1-2.1.4	The guidance document describes four alternative land uses but fails to describe these alternatives as examples and not a comprehensive listing of all alternative land uses. The guidance should bold the discussion that the 4 land uses are presented as examples and other land uses may be proposed. Also the guidance should clearly state the options that are provided, does the NJDEP believe that any ARS should/could fall into these four uses? While here they are presented as categories, the examples, replete with exposure assumptions for the land use categories, imply that this is a standard for the stated land use. If that is the case (i.e., the Department is trying to standardize these categories), then that is what should be stated and made transparent. If not, then this should be presented as the Department's professional judgement and other assumptions, and if properly justified may be considered.
20	18-28	5	2.1.1-2.1.4	There is no discussion/guidance regarding how to apportion the soil ingestion rate; in fact, this is one parameter that the NJDEP does NOT allow to be changed. What is the basis for this position? The USEPA default soil ingestion rates (updated) acknowledge that this is a daily total ingestion rate for a typical child or adult daily activities. Is the Department implying that the soil exposure during these activities outside of the home is in addition to the established daily rate? If so, what is the basis for that? Given that the USEPA acknowledged uncertainty, would it not be appropriate to apportion the "home" and "non-home" ingestion rates as USEPA guidance is provided for lead for intermittent non-home exposures using the time-weighted average approach? https://semspub.epa.gov/work/11/176288.pdf. The current approach identified in the ARS Technical Guidance appears to ADD the soil ingestion from the non-residential (non-home) exposure to the potential residential exposure (home). This would create an unnecessary redundancy. The soil ingestion rate should be based on mg/hr of the activity similar to that for sediment in the updated Chapter 5 of the USEPA Exposure Factor Handbook. In general, the exposure assumptions should be based on a per hour of specified activity unless it can be demonstrated that it is not applicable. As stated above, there are many sites where the “restricted residential” approach would be appropriate given the limited exposure to soils. The soil exposure pathway (ingestion/dermal) may be incomplete under these scenarios with an exposure of zero. Paved trails in recreational areas would also limit the direct contact exposure to soils. We request clarification on these points.
21	20	5	2.1.1	Preschool children are considered zero to six years old but it is unlikely that there are infants engaged in the stated activities/exposure assumptions (i.e., playing at the playground for 200 days a year when temperatures are above 50 degrees F). We recommend that the NJDEP reevaluate these assumptions and/or annotate the discussion to indicate where age-adjusted, logical, mathematical conversions of these kinds of exposure factors are reasonable and warranted. The age-adjusted ingestion rate and age-adjusted dermal exposure currently specified in the proposed amendments are only utilized for the lifetime exposure assuming 6 years as a child and 20 years as an adult. These parameters are based on residential exposure to children and adults. The soil ingestion rate and dermal exposure (skin surface area) parameters are ones that the NJDEP does NOT allow to be changed. Assuming 200 mg/day soil ingestion for an infant during the sports playing field scenario is not representative of actual exposure of this age group and overestimates potential exposure. The skin surface areas assumed to be exposed are the head, hands, forearms, lower legs and feet. In Example 2 (Playground), preschool age children are assumed to be exposed five days a week for two hours per day when the temperature is >50° F. It is unrealistic to assume that preschool age children, especially infants, are playing in shorts with bare feet for two hours/day when the temperature is less than 65-70° F. Soil ingestion rate and skin surface area should be included as factors that can be adjusted to be representative of alternative scenarios.

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22	25	5	Utility	On what basis is the utility work exposure assumptions based (i.e., 30 days/10 years)? Unlike the 10 years employment parameter from the labor bureau, the NJDEP is assuming that an individual is assigned to the same site/location 30 days for 10 years. The use of site specific information is appropriate for the exposure frequency and duration. Information regarding the number of underground utilities, the age of the utilities, the history of repairs (provided by the utility or based on site records), and depth to groundwater is necessary to evaluate the potential for utility worker exposure. Application of the specified default parameters is not realistic and the basis should be transparent. We request clarification and recommend that the NJDEP reevaluate these assumptions.
23	27	5	2.1.4	Throughout the guidance document, the NJDEP utilizes vague terms that should be defined to allow a reasonable evaluation of an ARS. In the ARS for a Birding example, the NJDEP mandates a permit and monitoring of the adjacent use of the property. There is no definition of when there is "an increased property use due to development of adjacent land." Specifically, what is adjacent land?; e.g. immediately contacting the property, within 200 feet of the property, within 500 feet of the property, etc.? Similarly, there is no definition of the frequency (or infrequency of land use). If the adjacent land changes sufficiently, a RAP may be rescinded and additional remedial actions may be required, outside of the control of the PRCR.
24	28	5	2.1.5	Table 2 shows the ingestion-dermal ARS values, the inhalation ARS values, and the most restrictive value for the two pathways incorporating the reporting limit (RL) and State background level where applicable. This statement implies that the NJDEP has the calculator available to present Table 2 as examples. How can stakeholders effectively evaluate the guidance document without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator)? We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately.
25	30	5	2.1.5	The presentation of the Table 2 Example Summary furthers the impression that the presented values are the only values to be considered by providing comparison to the SRS. See above comment (Pg. 28, Section 5.2.1.5). Although Table 2 includes the term Example in the title, an Investigator may not realize the site specific variables. The title for Table 2 should be expanded to include "Summary of Example Alternative Remediation Standards Based on Specific Exposure Variables".
26	30	5	2.1.5	Table 2 - Why is arsenic (established at "natural background") the same across all land use scenarios? Based on the exposure assumptions, was the resulting potential ARS below 19 mg/kg and that results in reverting to background? If so, that should be stated. If not, why is background concentration the ARS?
27	30	5	2.1.5	Table 2 - Does the NJDEP mean to impart the impression that soil ingestion associated with B(a)P is similar in risk for residential exposure assumptions as it is with active recreation? This is particularly important given the anthropogenic atmospheric deposition of PAHs across New Jersey. Several researchers have documented B(a)P and other PAH deposition is ubiquitous including a recent article by researchers from the USEPA, USGS and University of Helsinki (See "Primary Sources of Polycyclic Aromatic Hydrocarbons to Streambed Sediment in Great Lakes Tributaries Using Multiple Lines of Evidence", Environmental Toxicology and Chemistry Journal, June 2020, DOI: 10.1002/etc.4727). Given this example, has the Department reconsidered establishing background PAHs (including B(a)P) concentrations? The guidance document should be expanded to encourage an Investigator to provide information on background concentrations.

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28	30	5	2.1.5	The footnote to Table 2 (and on Page 8) states that by policy, mutagenic mode of action is not considered when calculating carcinogenic soil remediation standards. This policy should be provided for review and expanded in the guidance document..
29	31	5	2.2	The guidance document recognizes site specific conditions can affect the bioavailability of lead. The USEPA also recognizes the bioavailability of other inorganic chemicals and semi-volatile organics can vary from default assumptions. The NJDEP should allow the evaluation of site specific Ingestion-Dermal standards based on site specific evaluations of chemical bioavailability.
30	33	5	3	Throughout the legislative discussions during the SRRA 2.0 stakeholder meetings, there was a consistent theme that New Jersey needs to address the backlog of site remediation approvals and implement decision making processes similar to the Massachusetts program in order to have sites remediated and returned to productive use. An overall review of these proposed regulations leads one to assume that the Department intends on keeping a command and control approach to the use of ARS. This has proven to not be a successful model for the site remediation process in NJ. Under NJDEP Case Management, a back log of cases resulted in the adoption of the LSRP Program. The remedial action permit approval process is one aspect of the LSRP Program that has remained under NJDEP command/control style management. A backlog of remedial action permits pending NJDEP approval began to grow immediately under the LSRP Program. A backlog of approvals remains today. The NJDEP needs to inform the regulated community how it is going to manage ARS submittals, which could be numerous given the extremely stringent proposed promulgated standards, in a timely fashion. The Department must give serious consideration to its review process and should evaluate lessons learned from its remedial action permit approval experience, which has not been managed efficiently or effectively. Will the Department be able to implement a more efficient management approach to process submittals which will be more complicated than the remedial action permit applications that have been a struggle to process? The Department has acknowledged that there was not a "plan" for the remedial action permit approval process in the early days of SRRA, stating in public forums that resources were dedicated to the receptor evaluations and RIRs. Does the Department have its plan in place for managing the ARS submittals? Does the Department have the resources/expertise to manage this important step in the process? If there is any question of the Department's resources, abilities, or expertise the LSRPs should be given more authority to develop and implement ARS without NJDEP approval or delays and backlogs will be difficult to avoid.
31	34	5	3.1	There is a reference to the NJDEP's calculation tool but a search of the webpage site identifies the Inhalation Exposure Pathway calculations from 2008. This calculator requires integration with an EPA model titled EMSOFT (Exposure Model for Soil-Organic Fate and Transport), however the EMSOFT links are broken. How can stakeholders effectively evaluate the guidance document without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator)? We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately. Sections 5.3.1 to 5.3.3 refer to the appropriate calculator.
32	34	5	3.1	The guidance document uses the 2021 reference; please confirm that this is based on expected promulgation.

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33	37	6	0	There is a reference to the NJDEP's calculation tool but a search of the webpage site does not result in any finding of the calculator. How can stakeholders effectively evaluate the guidance document without being able to review the calculator function (and the basis and background for its development as provided by the USEPA for its RSL calculator)? We are requesting the release of the calculators for the ARS to be reviewed and commented on appropriately.
				Specific
1	8	4	0	The USEPA recently updated the Regional Screening Level tables in May 2020. The citation "USEPA 2018" should be changed to "USEPA 2020." The updated RSL citation assumes none of the content cited by NJDEP changed since the 2018 edition; please confirm.
2	8	4	0	The inability to change default parameters used in calculating the default SRS for residential or non-residential land use, except for physical parameters for the inhalation exposure pathway, significantly limits the use of ARS. The ability to develop ARS on a site/AOC specific basis is a core component of many other state regulatory programs and the USEPA. ARS have been proven to be protective remedial measures and should be further promoted as the NJDEP attempts to address the impacts of climate change. For example, the development of ARS may reduce the need to install engineering controls (caps). Knowing that many of the properties requiring capping are located in urban centers ARS may assist in reducing the "heat island effect" , which is an initiative of the USEPA (https://www.epa.gov/heatislands).
3	10	4	2	It is recommended that the formatting of the phrase "water-filled soil porosity (qw) (0.23 Lwater/Lsoil)" be changed to "water-filled soil porosity (qw) (0.23 L_{water}/L_{soil})." ("water" and "soil" should be in subscript)
4	10	4	2	The document states, "*[t]he input parameters used by the Department are the same as those used by the USEPA Superfund Program, except for those used to model air dispersion and certain soil characteristics (see Appendix C Tables C-5 and C-6)".* The Department should provide the rationale for using different parameters for air dispersion and certain soil characteristics.
5	11	4	3	We request explanation on why the new calculated ARS for benzene (8.8 mg/kg inhalation compared to 3 mg/kg ingestion-dermal) in the example provided is immediately not allowed to be utilized. The Tech Regs require remedial investigations based on a point-by-point evaluation of the Direct Contact pathway, however a site specific ARS for benzene inhalation based on a specific exposure domain was calculated.

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6	11	4	3	The NJDEP consistently identifies the lowest chemical concentration as the most appropriate and protective. This position aligns with the USEPA's use of RSLs for site characterization identifying the nature and extent of contaminants. The NJDEP fails to evaluate the potential exposure pathway as defined by the USEPA risk assessment guidance (USEPA 1989) including but not limited to the consideration of chemical stratification and contaminant depth. The guidance document should be amended to encourage the LSRP to review each exposure pathway and develop a reasonable ARS proposal based on the chemical characteristics of the site conditions. In the example, it is reasonable to remove all soil impacted with Benzene above the 3 mg/kg to a depth of 5 feet (ingestion standard), but allow natural attenuation of soil below 5 feet at a concentration less than 8.8 mg/kg, the inhalation ARS. There are many other alternatives to evaluate attainment of a remedial objective and the NJDEP should encourage resourceful evaluation of all site conditions. Continuing with the example, a soil gas survey could be conducted to document the calculated inhalation concentrations are overly conservative and not representative of site conditions, therefore the inhalation pathway should not be considered for a limited-restricted RAO.
7	12	4	3	The various referenced ARS technical guidance documents for the Migration to Groundwater Pathway and Vapor Intrusion have not been published so the requirement to evaluate these as part of the ARS process cannot be evaluated at this time. Citation of these technical guidance documents within this document creates a circular reference.
8	12	4	3	This document addresses the ingestion-dermal and inhalation exposure pathways, which need to be considered for both saturated and unsaturated soils. The migration to groundwater exposure pathway is only applicable to unsaturated soil. To avoid any confusion, the Department should revise the following sentence *"[t]he ARS process must also consider the migration to groundwater exposure pathway* <u>*for unsaturated soils*</u> *for the SRS addressed in the Alternative Remediation Standards Technical Guidance for the Migration to Ground Water Pathway (NJDEP 2021c)"* .
9	15	Table 1		The NJDEP has allowed use of a Soil-Water Partition Equation Calculator for modification of source area parameters, however this is prohibited in the Fate and Transport Modeling of the ARS process. Site specific source area information should be allowed in the ARS process.
10	18	5	2.1	While the alternative land use examples are informative to how the process may work, they have very little practical use for users of this document. The NJDEP needs to provide more common land uses and land use alternatives scenarios as part of this document. The current examples will either 1.) limit the extent to which investigators utilize this tool or 2.) result in alternative land use submittals that are unacceptable to the NJDEP. If the former is the intention of the examples provided, the Department should just clearly state that it intends to only accept these rare examples and the acceptance of this alternative will be limited. Without a clear indication from the Department the latter is inevitable, which will result in wasted time and resources for both the investigators and the Department.

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11	20	5	2.1.1	In the Sports Playing Field Example for Active Recreational Land Use, this example is "represented by a young child (age zero to six years) who starts out watching their older sibling play soccer (games, practice) for 65 days per year (half of the player exposure frequency). At the age of six, this individual then is assumed to become a soccer player who participates in spring and fall leagues on the same field. During this period, they participate from age six to 18 years, for 130 days per year including practice (USEPA 2014b) for 12 years." The guidance document should clearly indicate that the Alternative Remediation Standard for exposure to carcinogens and non-carcinogens would be calculated using exposure assumptions for the combined child and youth (i.e., not inclusive of adult exposure as is used in calculating the default Soil Remediation Standards). The basis for exclusion of the adult exposure (the soil remediation standard is more stringent based on child and youth exposure) should be included for clarity. In the blue summary box, all applicable child and youth exposure assumptions for the ingestion-dermal and inhalation exposure pathways to carcinogens and non-carcinogens should be provided.
12	20	5	2.1.1	In the Playground Example for Active Recreational Land Use, this example is "represented by a child using a playground in a park adjacent to or near their house. For preschool age (zero to six years), it is assumed the child visits the playground five days per week for two hours, when the average ambient high temperature is above 50oF (200 days based on nine months i.e., 40 weeks x five days/week), based on information from the Office of the New Jersey State Climatologist. Starting at school age, the frequency of visiting the playground decreases and eventually the youth only meets with friends in the park a few days per week for two hours, when the average ambient high temperature is above 50oF (200 days based on nine months i.e., 40 weeks x three days/week)." Is the NJDEP excluding the adult from this example? It is unlikely that a child receptor would participate in this activity without being accompanied by an adult. If the adult is expressly excluded, the guidance document should clearly indicate that the Alternative Remediation Standard for exposure to carcinogens and non-carcinogens would be calculated using exposure assumptions for the combined child and youth (i.e., not inclusive of adult exposure as is used in calculating the default Soil Remediation Standards). In the blue summary box, all applicable child and youth exposure assumptions for the ingestion-dermal and inhalation exposure pathways to carcinogens and non-carcinogens should be provided.
13	22	5	2.1.2	In the Jogger Example for Passive Recreational Land Use, this example is "represented by an individual adult who jogs on trails through a park." The guidance document should clearly indicate that the Alternative Remediation Standard for exposure to carcinogens and non-carcinogens would be calculated using exposure assumptions for the adult (i.e., not inclusive of child exposure as is used in calculating the default Soil Remediation Standards). In the blue summary box, all applicable adult exposure assumptions for the ingestion-dermal and inhalation exposure pathways to carcinogens and non-carcinogens should be provided.
14	27	5	2.1.4	In the Birding Example for Infrequent Access Areas, this example is "represented by an individual adult birding or otherwise observing nature in a remote ecological preservation area with no trails, no hunting permitted and with birders/naturalists expected to use the area." The guidance document should clearly indicate that the Alternative Remediation Standards for exposure to carcinogens and non-carcinogens would be calculated solely using exposure assumptions for the adult (i.e., not inclusive of child exposure as is used in calculating the default Soil Remediation Standards). In the blue summary box, all applicable adult exposure assumptions for the ingestion-dermal and inhalation exposure pathways to carcinogens and non-carcinogens should be provided.

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15	28	5	2.1.5	While the guidance document implies that the examples provided are not the only ones that could be considered, that is not the impression from the presentation. We recommend that the NJDEP correct this impression, and move the examples to the appendix and not have them appear in the body of the guidance document other than as a reference.
16	30	Table 2		It is recommended that the Example Alternative Remediation Standards summarized in Table 2 be updated to include the salient points raised in Comments 11 - 14, herein.
17	30	Table 2		Using benzene as the example, an investigator in NJ would have to seek NJDEP approval to implement an ARS to increase the default SRS from 2.2 mg/kg (residential inhalation) to 200 mg/kg at a "Restricted Access Area", which according to the document is considered a right of way or a street. Based on the land use alternatives examples, it is unclear how willing the Department will be to accept such an increase for uses beyond a right of way or street. Using default standards (look up tables), investigators in other states can select default benzene soil standards up to 1,000 mg/kg without regulatory agency approval based on the development of additional SRS categories. The Department should consider the development of additional SRS categories or allow the LSRPs to develop and implement ARS without NJDEP approval.
18	32	5	2.2	The NJDEP accepts that site specific conditions can affect the bioavailability/bioaccessibility for lead, and "site specific data are more representative than the default values for lead". The NJDEP should expand the evaluation of bioavailability/bioaccessibility to other chemicals when evaluating a site specific ARS.
19	33	5	3	The NJDEP states, "All ARS options for the ingestion-dermal exposure pathway require prior approval from the Department.", however the NJDEP fails to identify the reason and project variables that affect any decisions made by the NJDEP. The NJDEP also fails to identify why this personal oversight is necessary. The guidance document should be amended to identify the specific variables and the acceptable range of variables for review by the regulated community and the LSRP without NJDEP approval.
20	34	5	3.1	As described in Section 4.3, the NJDEP expects an LSRP to have "knowledge and understanding of the techniques and methodologies of risk assessment (USEPA 1989)", however the guidance document fails to evaluate the depth of the soil when evaluating the inhalation exposure pathway. The NJDEP should provide the LSRP the flexibility to define vertical exposure domains, rather than single-point compliance of a mathematical standard concentration.

Comment #	Page	Section	Subsection	COMMENTS
21	34	5	3.1	The NJDEP proposes to require a Remedial Action Permit for an ARS based on a site specific depth range of contamination, regardless of the starting depth of the remaining contamination zone. The NJDEP should establish the maximum depth where a RAP is required to confirm protection to the environment, e.g. 5 feet below existing grade. It is reasonable to believe there will be cases where surface remedial actions have been completed and deeper Inhalation Exposure concentrations will undergo natural attenuation. It is financially and physically unreasonable to establish a permit requirement for all inhalation conditions. Additionally, the potential for soil erosion or a decrease in soil cover by excavation is very limited in New Jersey. Given the documented effects of global warming and the increasing flood elevation mapping, there is a much greater potential for sites to receive additional fill material or to become abandoned to projects such as Blue Water. Each of these scenarios should be identified and described in the guidance document including a procedure to evaluate future flooding and/or filling activities.
22	35	5	3.2	The referenced ARS Technical Guidance for Migration to Groundwater Pathway has not been published so the method stated for measuring soil organic carbon cannot be evaluated at this time.
23	35	5	3.2	The NJDEP requires the PRCR to describe "how the input parameters were selected (i.e. average or lowest foc concentration). The NJDEP should clarify the conditions where the use of the lowest foc concentration would ever be required. Utilization of the lowest foc concentration is overly conservative and not reasonably justified. Further an ambiguous description of the required parameters does not support a collaborative evaluation of the data.
24	35	5	3.2	The guidance document states, "The Department's calculator will develop an appropriate foc from values entered." The NJDEP should clearly state the rationale and basis for the selection of a reasonable foc concentration.
25	35	5	3.2	The guidance document states, "The Department's calculator will develop an appropriate foc from values entered." The current calculator does not function as defined in the Guidance document. The NJDEP should provide the proposed calculator for review and evaluation by the regulated community.

Comment #	Page	Section	Subsection	COMMENTS
26	36	5	3.3	It is recommended that the NJDEP provide a complete definition for "fraction of vegetative cover." In the USEPA Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part B, Development of Preliminary Remediation Goals) (EPA/540/R-92/003 dated December 1991), the Volatilization Factor calculation "assumes that the contaminant concentration in the soil is homogeneous and that the contaminated soil is not covered by contaminant-free soil material." The Particulate Emission Factor algorithm is "representative of a surface with 'unlimited erosion potential,' which is characterized by bare surfaces." The term "vegetative cover" is misleading. The spirit and intent of the vegetative cover component of the algorithm is to identify the proportion of the site footprint where wind-blown soil erosion will not occur. The Department has proposed a default Fraction of Vegetative Cover of 50% which "represents a reasonable compromise between no cover and a totally vegetated site," consistent with the USEPA Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128 dated May 1996). In the Draft Alternative Remediation Standards Technical Guidance Table 1 (page 15), the Department has indicated that Vegetated Cover Fraction is "a factor which can be changed via the ARS process." The guidance document should provide clarification that the Vegetated Cover Fraction is the percentage of the site footprint where bare soils are not exposed to potential wind erosion, irrespective of whether those areas are vegetated. The Vegetated Cover Fraction includes building footprints, paved areas, graveled areas, grassed areas, landscaped areas, capped areas, areas previously remediated and areas with clean fill or soil overlying impacted soils. Using 50% Vegetative Cover Fraction to develop the default Soil Remediation Standards as is described in the Draft Proposed New Rules and Repeals to N.J.A.C. 7:26D dated April 2020 is overly conservative for the vast majority of impacted sites in the State. The Department should consider using a higher Vegetative Cover Fraction as the default. If the NJDEP maintains the 50% Vegetative Cover Fraction as the point of departure, the Department may very likely receive ARS applications for most of the sites regulated by the Site Remediation and Waste Management Program where the inhalation exposure pathway is the driver.
27	36	5	3.3	The NJDEP is requiring an institutional control and a remedial action permit for an ARS with variability in the vegetative cover. The Department has proposed a default Fraction of Vegetative Cover of 50% which "represents a reasonable compromise between no cover and a totally vegetated site," consistent with the USEPA Soil Screening Guidance: Technical Background Document (EPA/540/R-95/128 dated May 1996). In the Draft Alternative Remediation Standards Technical Guidance Table 1 (page 15), the Department has indicated that Vegetated Cover Fraction is "a factor which can be changed via the ARS process." The guidance document should provide clarification that the Vegetated Cover Fraction is the percentage of the site footprint where bare soils are not exposed to potential wind erosion, irrespective of whether those areas are vegetated. The Vegetated Cover Fraction includes building footprints, paved areas, graveled areas, grassed areas, landscaped areas, capped areas, areas previously remediated and areas with clean fill or soil overlying impacted soils. Using 50% Vegetative Cover Fraction to develop the default Soil Remediation Standards as is described in the Draft Proposed New Rules and Repeals to N.J.A.C. 7:26D dated April 2020 is overly conservative for the vast majority of impacted sites in the state. The NJDEP should provide additional guidance regarding the establishment of a Remedial Action Permit for a vegetative cover. The NJDEP should clearly define site specific parameters including how should the vegetative cover be defined and when is a permit modification required? It is reasonable to believe a grassed area may be changed to an area of shrubs, or a gravel path or a compacted footpath or a sidewalk, etc. Will each of these minor changes require a permit modification with a $660.00 fee?

Comment #	Page	Section	Subsection	COMMENTS
28	38	References		The NJDEP references an updated Vapor Intrusion Technical Guidance document (Version x.x) to provide additional monitoring and site specific evaluation information. It is unreasonable to reference a future guidance document within a guidance document that is requesting public comment. The referenced guidance documents should be released simultaneously.
29	40	References		The USEPA recently updated the Regional Screening Level tables in May 2020. The reference to the USEPA Regional Screening Levels User's Guide should be changed from "November 2018" to "May 2020."
30	44	Appendix B		In the Appendix B List of Acronyms, we recommend that the NJDEP adds the following four acronyms cited in the guidance document but which are not currently included in the List of Acronyms: ATV All-Terrain Vehicle; CSAT Soil Saturation Concentration; PRCR Person Responsible for Conducting the Remediation; SRWMP Site Remediation and Waste Management Program.