

# NJDEP Technical Guidance Document Review Form

**Document: *Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria Version 2.0***

**Comment Period: *February 9, 2021 to February 23, 2021***

**NJDEP Committee Chairperson: *Dr. Barry Frasco***

Comment #	Page	Section	Subsection	COMMENTS	RESPONSE
1	General			CCNJ/SRIN support the incorporation of the use of rounding to demonstrate compliance with remediation standards in the Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria. (3)	The Department acknowledges the commenter's support.
2	General			The revisions do not include any discussion of averaging parent and duplicate sample results. Often times, either the parent or duplicate results will be above the applicable remediation standards, while the other result will be below the applicable standard. Please provide a statement regarding whether averaging is allowable in this scenario. (6)	Parent and duplicate samples are a quality control measure to evaluate laboratory performance. These samples should not be averaged to determine compliance with remediation standards. For soils, the sample/sample duplicate with the higher contaminant concentration can be used in compliance techniques contained in the technical guidance document. For ground water, the sample/sample duplicate with the higher contaminant concentration can be used as part of the ground water compliance option found in sections 7.3.2 through 7.3.4 of the technical guidance document.
3	General			Recommendation: Include a table on rounding applicability and method applicability. The table could be simplified and list: Attainment method, # of significant figures allowed, round before/after compliance option and exceptions (i.e. contaminants). From BIR's experience, tables just seem to be more effective when trying to get a quick answer from a guidance. With that said, the information is clearly written out throughout the guidance and should be read through (1)	The Department will consider this suggestion during the next revision of the guidance document as there may be other sections of the document where the addition of tables and examples would be helpful.
4	5	2	0	The term "achieving" was changed to "demonstrating." For consistency, may want to change the "achieve" to "demonstrate" in the first sentence of section 3.0 (8)	The suggested change was made to the document in Section 3.0. In addition, a similar change was made to the second paragraph of Section 2.0.
5	10,11	5	5.2	Reference to the Department's January 2020, "Interpretation of Technical Requirements for Site Remediation requirement to "complete the remedial investigation" (N.J.A.C. 7:26E-4.10)" available at <a href="https://www.nj.gov/dep/srp/guidance/srra/ri_complete_policy_statement_202001.pdf">https://www.nj.gov/dep/srp/guidance/srra/ri_complete_policy_statement_202001.pdf</a> may prove helpful here. The guidance document is referencing "single point" compliance for the purpose of developing a site specific standard but it is not speaking to what is considered a "complete" RI for the purpose of meeting a regulatory/mandatory/statutory timeframes. (1)	Section 5.2 of the guidance document is not referencing "single point" compliance for the purpose of developing a site-specific standard. In most instances, the delineation of the horizontal and vertical extent of contamination to the remediation standard is done through the collection of environmental samples. Each sample is evaluated individually to determine if the sample meets the applicable remediation standards (i.e., single point compliance). The Department recognizes that other approaches (e.g., modelling) may be used to delineate contamination. The Department has added a reference to the commenter's suggested document to this guidance document.
6	12	6	1	For consistency, consider rounding soil remediation standards less than .1 mg/kg to two significant digits. (8)	With the adoption of amendments to the Remediation Standards (N.J.A.C. 7:26D), all soil remediation standards are rounded to two significant figures. This guidance document has been changed to reflect this.
7	12	6	1	Should also have rounding examples for standards < 1 (4)	Examples of data rounding for values less than 1 have been added to Section B3.0 of the guidance document.
8	12	6	1	Should have reference to rounding appendix (4)	A reference to section B3.0 has been added.

Comment #	Page	Section	Subsection	COMMENTS	RESPONSE
9	12 14 32 B2 B3	6 6 10 B2 B2	1 2 0 1.1 1.2	<p>CCNJ/SRIN recommend that a reference to the USEPA Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA 2001)<sup>1</sup> be included in the discussion about rounding all direct contact soil remediation standards (residential and non-residential) that are less than 10 milligrams per kilogram (mg/kg) to one significant figure and rounding all direct contact soil remediation standards (residential and non-residential) that are 10 mg/kg or greater to two significant figures. The rounding rules specified are contained in Hurlbert (1994).<sup>2</sup> The inclusion of these references would be consistent with what is currently in the March 2013 NJDEP Vapor Intrusion Screening Levels document (<a href="https://www.nj.gov/dep/srp/guidance/vaporintrusion/vig_update_tables.pdf">https://www.nj.gov/dep/srp/guidance/vaporintrusion/vig_update_tables.pdf</a>; Rounding Procedures Used in the Development of the Screening Levels).</p> <p><sup>1</sup> U.S. Environmental Protection Agency (USEPA). 2001. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Draft Final, Office of Solid Waste and Emergency Response, Washington, DC. OSWER 9355-4-24.</p> <p><sup>2</sup> Hurlbert, R. T. 1994. Comprehending Behavioral Statistics. Brooks/Cole Publishers, Pacific Grove, CA. (3)</p>	<p>With the adoption of amendments to the Remediation Standards (N.J.A.C. 7:26D), all soil remediation standards are rounded to two significant figures. This guidance document has been changed to reflect this. The soil, soil leachate, and indoor air remediation standards contained in the amended Remediation Standards, N.J.A.C. 7:26D were rounded using the rounding rules contained in Section 6 of the American Society for Testing and Materials (ASTM) Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (ASTM E29-13). For consistency purposes, this guidance document is recommending that the referenced ASTM protocol be used when rounding analytical data (see section B3.0).</p>
10	12	6	6.1	<p>The sentence "This includes the soil remediation standards for 1,2-Dichloroethene (trans) (residential 300 mg/kg), styrene (residential 90 mg/kg), and anthracene (non-residential 30,000 mg/kg) are rounded to two significant figures." needs "which" after anthracene. Please also include an example to provide greater clarity. (6)</p>	<p>The original intent was to clarify that direct contact soil remediation standards which appear to be listed as one significant figure are, in fact, two significant figures. Upon consideration, the addition of this wording is more confusing than helpful. Therefore, the listing of remediation standards for these compounds has been deleted. In addition, Sections 6.1 and 6.11 have been revised to improve clarity.</p>
11	14	6	2	<p>Should also have rounding examples for standards &lt; 1 and/or reference the rounding appendix (4)</p>	<p>Examples of data rounding for values less than 1 have been added to Section B3.0 of the guidance document.</p>
12	14	6	2	<p>Leachate should have it's own subsection in anticipation of the revised SRS (4)</p>	<p>Soil and soil leachate remediation standards for the migration to ground water exposure pathway will remain in Section 6.2 of the guidance document. The title of this section has been changed to "6.2 Migration to Ground Water Exposure Pathway Soil and Soil Leachate Remediation Standards".</p>
13	16	6	6.6	<p>References VIT "section 3.1.2.4". There is no section 3.1.2.4... A subsection of 3.1.2 (Access) doesn't seem to apply here. With a new version of the VIT looming, mostly to incorporate the changeover to the Indoor Air Remediation Standards, perhaps whatever the reference was intended should correspond to the forthcoming VIT.</p> <p>Also,</p> <p>The attainment guidance document only lists the IASL. Would it be more appropriate to use the IARS? BIR's understanding is that they were on the April register and effective in May (fingers crossed). (1)</p>	<p>The reference to Section 3.1.2.4 has been deleted as there is no Section 3.1.2.4 in the Vapor Intrusion Technical Guidance. References to indoor air screening levels have been changed to indoor air remediation standards.</p>
14	16	6	7.2	<p>Reference for compliance averaging in terms of HAP sites should be mentioned (4)</p>	<p>References to the Technical Requirements for Site Remediation (N.J.A.C.7:26E) were added to Section 6.7.1 for special requirements involving historic fill and landfills. Reference to the Historically Applied Pesticides Technical Guidance was also added to Section 6.7.1.</p>
15	17	6	7.3.1	<p>Second bullet - 5.1(e) is a great reference, but the reference to the LNAPL guidance should be clarified in that it is more geared for when product (LNAPL specifically) is observed &gt; 0.01 feet and to implementation of an IRM. LNAPL timeframes discussed in the LNPAL guidance only kick in if LNAPL was observed &gt; 0.01 feet. It has given some investigators the impression that the Department is not concerned with product &lt;= 0.01 feet, including sheens. (2)</p>	<p>Section 6.7.3.1 has been modified to better indicate when the LNAPL technical guidance should be consulted.</p>
16	20	6	7.4.1	<p>Both sentences at top are repeats from prior page. (4)</p>	<p>The first sentence in Section 7.4.1. has been deleted.</p>
17	25	6	7.5.2	<p>Bullet point 3 - need to switch from DC to IGW pathway in text (4)</p>	<p>Suggested change was made to Section 6.7.5.2.</p>

Comment #	Page	Section	Subsection	COMMENTS	RESPONSE
18	26	6	6.7.5.2	The final "NOTE" at the end of section references Historic Fill recommend referencing the Historic Fill Technical Guidance here. (1)	Reference to the Technical Requirements for Site Remediation (N.J.A.C. 7:26E) and the Historic Fill Material Technical Guidance was added.
19	26	7	7.1	1st paragraph changed "Site or AOC" to "AOC or Site" throughout GW section to remain consistent (1)	The recommended change is not necessary.
20	26	7	7.1	1st paragraph last half of 2nd sentence was confusing. It was reworded. (1)	The second sentence of the first paragraph of Section 7.1 was slightly modified for clarity.
21	26	7	7.1	1st paragraph Class III was separated into Class III-A and III-B (1)	Suggested modification was made to Section 7.1.
22	26	7	7.1	2nd paragraph Question 1: is the rounding strictly for chloride or are chlorinated compounds included. Question 2: Can all perfluorinated compounds be rounded? (1)	The Class IIA ground water quality standard (and by reference the ground water remediation standards) for the chloride ion is rounded to two significant figures. The Class IIA ground water quality standards (and ground water remediation standards) for listed contaminants are rounded to one significant figure. Perfluorinated compounds with numeric ground water remediation standards can be rounded pursuant to this guidance document unless ground water analytical data are used to determine if an immediate environmental concern exists or if analytical data are used to determine if a potable water treatment system is properly operating. Under these conditions rounding of data to demonstrate compliance with remediation standards is not allowed.
23	26	7	7.1	3rd paragraph "Narrative standards... has been relocated as the fourth paragraph so that discussion of Class II-A paragraphs remains together (1)	The suggested change was made to the document in Section 7.1.
24	26	7	7.1	In the following sentence "for" has been replaced with "of". In Class II-A ground water, for contaminants that do not have a standard listed as above, see the Ground Water Quality Standards at N.J.A.C. 7:9C-1.7(c)2 through 6 for the process of developing interim ..... (1)	The suggested change was made to the document in Section 7.1.
25	26	7	7.1	The last sentence of the first paragraph provides a list of chemicals that are exceptions to the number of significant figures associated with the Class II-A GWQS. These exceptions differ slightly from the chemicals listed in Appendix B, section B2.2. Suggest listing the exceptions in one section, then citing that section elsewhere. This would eliminate lists that differ slightly in different sections. (6)	The suggested change was made to the document. The full list of contaminants that have ground water quality standards (and ground water remediation standards) rounded to two significant figures is contained in Section 7.1. Reference to this list of contaminants is contained in Section B2.2.
26	26	7	1	Rounding to one significant figure is allowed for direct contact soil when standard is less than 10 ppm and to two significant figures when the standard is $\geq$ 10 ppm. Why not similar approach for ground water (other than standards already at two significant figures)? For example, allow rounding to one significant figure with a standard $<$ 10 ppb, but to two significant figures for standards 10 and greater, similar to section 7.2 VI pathway. When ground water is delineated in a Class III area and VI is a concern, is delineation done to one significant figure or two based on VI ground water screening levels. A CEA that is established would likely be based on the GWVSLs. Similar thoughts based on section 7.3.5 RE. - no rounding for potable water data, but you can base CEA on rounded data. So one could potentially have an impacted potable well, but the CEA could potentially not include it. I suggest either no rounding or rounding to two significant digits across board, or round to two significant digits for standards $\geq$ 10 ppb. (2)	Pursuant to Department policy, as drinking water standards, ground water standards, surface water standards, soil standards, and indoor air samples are updated, the updated standards will be rounded to two significant figures. With the adoption of amendments to the Remediation Standards (N.J.A.C. 7:26D), all soil and soil leachate remediation standards and indoor air remediation standards are rounded to two significant figures. The current ground water quality standards (and by reference ground water remediation standards) are primarily listed with one significant figure. However, as new/updated ground water quality standards are adopted, they will be rounded to two significant figures. Delineation of ground water contamination is to the ground water remediation standards and not the ground water vapor intrusion screening levels. Site specific ground water quality/remediation standards developed for Class III groundwater would be rounded to the number of significant figures used in establishing the Class II ground water quality/remediation standard for the contaminant in question. While the CEA scenario presented by the commenter could occur, it would only occur if the the potable well results were slightly above the ground water remediation standard.

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27	27	7	7.2	Removed "guidance" from the following sentence: Ground water screening levels for the vapor intrusion exposure pathway are discussed in the Department's <del>guidance</del> "Vapor Intrusion Technical Guidance" (1)	The suggested change was made to the document in Section 7.2.
28	27	7	2	For VI evaluation, we are saying it is ok to round down to achieve the VI GWSLs, if appropriate. Are we also saying it is ok to round down to achieve the VI SGSLs, if appropriate? This is important as it triggers whether or not a VI investigation needs to be conducted at a building. Indoor air is specifically mentioned in that rounding to achieve the VI IASLs is not acceptable. I think this issue should be made more clear. (9)	Rounding of analytical data is allowed for vapor intrusion ground water screening levels and soil gas screening levels when using single point compliance. See sections 11.0 and B4.2 of the document. In addition, ground water screening level data associated with vapor intrusion investigations may be averaged and rounded pursuant to Section B4.1.1 of this guidance.
29	27	7.3	7.3.1	1st paragraph 2nd sentence: Suggested rewording: While Compliance averaging over spatial areas is acceptable for soils, it is not an acceptable for ground water. (1)	The suggested changes were made to the document.
30	27	7.3	7.3.1	1st paragraph 3rd sentence: Added the word ""as" The averaging process for ground water, as described in the following sections, is applicable only to ground water samples collected from a single sampling location over a limited time period. (1)	The suggested change was made to the document.
31	27	7.3	7.3.2	Introductory sentence added and each option bulleted to improve readability . Third bullet item reworked to clarify intent. This change has been repeated for each phase/section. Run on sentences have been broken into smaller sentences. (1)	This section was modified using some of the suggested changes proposed by the commenter.
32	27	7.3	7.3.2	Emphasis added to statement: For example, if the initial result is more than three times the vapor intrusion ground water screening level, a vapor intrusion investigation is triggered without exception. (1)	The suggested change was made to the document.
33	28	7.3	7.3.2	Question: Can an example be included after rounding explanation? (1)	The Department will consider this suggestion during the next revision of the guidance document as there may be other sections of the document where the addition of examples would be helpful.
34	28	7.3	7.3.2	Suggested sentence edits: The rounding process described in the paragraph above can <u>also</u> be applied to the evaluation of ground water screening levels <u>to address</u> for the vapor intrusion exposure pathway. (1)	The suggested change was made to the document.
35	28	7.3	7.3.2	last paragraph Changed "Site or AOC" to "AOC or Site" throughout GW section to remain consistent (1)	The recommended change is not necessary..
36	28	7.3	7.3.3	Introductory sentence added and each option bulleted to improve readability.This change has been repeated for each phase/section. Runon sentences have been broken into smaller sentences. (1)	An introductory sentence was added to Section 7.3.3. Changing "Site or AOC" to "AOC or Site" is not necessary.
37	28	7.3	7.3.3	First paragraph- second sentence minor word edits are suggested: This only applies to all ground water impacts originating from the AOC or site or AOC. Rounding of single point compliance data is acceptable. Rounding should be conducted to the number of significant figures expressed in the applicable remediation standard. (1)	With the exception of changing "Site or AOC" to "AOC or Site", the suggested edits were added to this paragraph of Section 7.3.3.
38	28	7.3	7.3.3	Second paragraph should be reworked to clarify the procedure of resampling and averaging the three sampling events (1)	This paragraph of Section 7.3.3 has been modified to address the commenter's concern.

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39	28	7.3	7.3.3	<p>The third paragraph reads "If the ground water contaminant concentration in any perimeter sample exceeds its applicable ground water remediation standard, then the investigator is to continue to collect ground water samples until delineation is completed pursuant to the preceding paragraphs..."</p> <p>The phrase "continue to collect ground water samples" could be misinterpreted by some to mean that they can continue to collect samples from existing gw sampling points until the standards are achieved without conducting additional delineation. While the guidance allows for the collection of two confirmation samples, additional horizontal and vertical delineation is required if the confirmation samples do not show that compliance with the remediation standard has been achieved.</p> <p>Suggested edit: "If the ground water contaminant concentration in any perimeter sample exceeds its applicable ground water remediation standard, then the investigator may collect two confirmation samples pursuant to the preceding paragraph. If compliance with the applicable ground water remediation standard is not achieved, then the investigator is to continue to expand the ground water monitoring perimeter collect ground water samples until delineation is completed pursuant to the preceding paragraphs..." (1)</p>	This paragraph of Section 7.3.3 has been modified to address the commenter's concern.
40	28	7.3	7.3.3	<p>The last sentence of the first paragraph suggests the remediation standards cannot be further rounded. Please state whether this is the case. (6)</p>	In most cases, horizontal and vertical delineation of contamination is conducted using single point compliance. Single point compliance data can be rounded as a mechanism to demonstrate compliance with a ground water remediation standard. However, as discussed in Section 7.3.3, if the concentration for a given contaminant is marginally above the ground water remediation standard (i.e., less than three times the ground water remediation standard), two additional samples from monitoring well can be collected over a 60 day time period and analyzed for the contaminant in question. The initial result and the two additional results are averaged and the average compared against the ground water remediation standard in question. The three individual sample results are not rounded prior to calculating the average. The average value may be averaged and compared against the applicable ground water remediation standard.
41	29	7.3	7.3.4	<p>Suggested changes to the first paragraph: "Pursuant to N.J.A.C. 7:26E, ground water contamination associated with an on-site discharge remaining above the applicable ground water remediation standards needs to be remediated.(what situations). This requires some form of remedial action such as active or passive [monitored natural attenuation (MNA)]; establishment of a CEA; and issuance of a Ground Water Remedial Action Permit. " (1)</p>	This paragraph of Section 7.3.4 has been modified to address the commenter's concern.
42	29	7.3	7.3.4	<p>Introductory sentence added and each option bulleted to improve readability . (1)</p>	An introductory sentence was added to this Section. Adding bullets was not necessary.
43	29	7.3	7.3.4	<p>Suggested changes to the second paragraph of Section 7.3.4: "If the concentration of any contaminant exceeds its applicable ground water remediation standard, then the ground water remedial action will not be considered complete. When contamination remains the person responsible for conducting the remediation is to continue with the ground water remedial action until compliance with applicable ground water remediation standards is achieved at all locations within the site monitoring well network." (1)</p>	The suggested changes were made to the second paragraph of Section 7.3.4.
44	29	7.3	7.3.4	<p>Suggested sentence edit in the third paragraph of Section 7.3.4: "This applies to all locations within the applicable ground water monitoring well network associated with the AOC or Site." (1)</p>	The suggested edit was made to the third paragraph of Section 7.3.4.
45	29	7.3	7.3.4	<p>Suggested modification of the fifth paragraph to clarify intent of sampling and averaging. (1)</p>	This paragraph of Section 7.3.4 has been modified to address the commenter's concern.

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46	29	7.3	7.3.4	Suggested Addition: Lead analysis associated with leaded gasoline discharges Consecutive sampling events for the evaluation of lead is not required to demonstrate compliance of the ground water quality standards associated with a leaded gasoline discharge. Low flow sampling is recommended to achieve compliance. Only one sampling event below the GWQS is required to demonstrate that lead is not a contaminant of concern for each sampling point. Once lead is detected below the GWQS at each compliance point no further analysis is required for this constituent. Filtered samples are not a recognized approved evaluation method. Volatile organic evaluation should follow the above compliance options. (1)	The intent of this guidance document was not to address every site remediation activity/process in detail. As such, it was determined that the addition of lead analysis associated with leaded gasoline discharges to this Technical Guidance was not necessary.
47	30	7.3.5		While issues of immediate environmental concern (IEC) are appreciated, directive statements like "Rounding of such data is not allowed" should include a statutory/regulatory authority citation. In the absence of such a reference, since this is a guidance document, consider revising these type of directive statements to indicating the preference. Also, the statement seems a bit strict given that there will undoubtedly be cases and scenarios where rounding of data at some level will be inevitable, reasonable and protective even in relation to an IEC. (5)	As it is a Department policy decision not to allow rounding of analytical data associated with vapor concern and immediate environmental concern determination, the wording of this technical guidance has been changed from "not allowed" to "should not be conducted".
48	32	10	0	First paragraph contains link to the EPH guidance document when it should a link to the "Ecological Evaluation Technical Guidance" (1)	The web link contained in Section 10.0 of this guidance document is the correct link.
49	32	11	NA	The second to last sentence of the paragraph states "Rounding of such data is not allowed." in reference to indoor air data used to evaluate an IEC or VC. Please clarify whether this should apply to all indoor air data, or just when concentrations are within a certain threshold of the RALs. (6)	All indoor air data is used to determine if a vapor concern (exceedence of the indoor air remediation standard) or immediate environmental concern (exceedence of the rapid action level) exists.
50	32	11	NA	This section excludes a discussion of soil gas data rounding. Please include that discussion or refer to the VIG. (6)	Section 11.0 has been modified to include information about rounding of ground water screening and soil gas screening data associated with vapor intrusion investigations.
51	32	11		The March 2013 'Update to the New Jersey Department of Environmental Protection (NJDEP) Vapor Intrusion Screening Levels', page 7-8, specifically discusses that rounding using significant figures was used in the Development of the Vapor Intrusion Screening Levels. Under the current screening levels, why then would rounding using significant figures not be allowable during investigation/remediation? Also, were the proposed vapor intrusion indoor air standards developed utilizing similar procedures (unclear based on the draft rules) and if so, why would the same significant figure rounding process not apply to data generated during an investigation/remediation? (7)	The March 2013 document cited by the commenter has been updated to conform with the amended Remediation Standards (N.J.A.C. 7:26D). Indoor air screening levels have been replaced with the indoor air remediation levels. The indoor air remediation standards and the ground water and soil gas screening levels are based on two significant figures using the rounding rules found in Section B3.0 of this guidance document. Rounding of ground water and soil gas screening levels is acceptable. However, rounding of indoor air remediation standards is not acceptable. The Department has implemented a policy that data used to to determine if vapor concern or immediate environmental concern conditions exists, are not subject to rounding.
52	32	11	0	No reference to subslab vapor samples (4)	Section 11.0 has been modified to include information about the number of significant figures and rounding of ground water screening and soil gas screening data associated with vapor intrusion investigations.
53	36	A	1	No explanation of types of samples to be used (horizontal vs vertical) and what those samples should represent (4)	Section A1.0 has been modified to include a short description of functional areas and a reference to Section A 2.1 (Functional Areas). In addition, a new Section A 1.1 (Evaluation of Functional Areas) has been added to the guidance document.
54	36	A	A1.0	Section A1.0 the first paragraph ends with "arithmetic mean should be used.0" the 0 should be removed. (1)	Deletion made

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55	A-2	A1.0		<p>Consider providing clarification of terms, rationale and examples. Define "distinct sample points" (e.g., is this referring to locations or data? If locations, how are varying depths to be incorporated?) The restriction to 9 or fewer values in the current text seems to contradict the statistical assumptions behind the accuracy of and average as a conservative estimator of the population mean (e.g., more data increase confidence in the mean according to the Law of Large Numbers and Central Tendency.) Similarly, the restriction of samples with 10 or more data to 2 distinct sample concentration values and the example given are unclear. It seems extremely unlikely to get so many concentrations that are of equal value in a given data set, unless most are ND (which is a more likely scenario based on experience). Is ND considered a distinct concentration value? If so, the text implies that this option would only be applicable where all data are ND except for one distinct sample concentration value. This seems overly restrictive. Consider including a provision to allow use of samples with concentration values below the applicable remediation standard/screening level or ND in the simple average calculation. (5)</p>	<p>Wording was added to this section to (1) clarify "distinct sample points", (2) identify scenarios where nine or fewer samples can delineate a contaminated area of concern, (3) identify when nine or fewer samples can confirm remediation of contamination, (4) clarify that the ProUCL software cannot calculate a 95 percent UCL if there are less than three distinct sample concentrations in the data set, (5) clarify that a non-detect sample concentration is considered zero and is considered a sample concentration. Wording was also added to this section to state that the "two distinct sample concentration" scenario is not common and listed a scenario when this could occur. The Department disagrees that the text of Section A 1.0 implies that the two distinct sample concentrations scenario would only be applicable where all data are ND except for one distinct sample concentration value. While this is the most likely scenario, it is not the only scenario. Clean samples which define the boundary of a contaminated area of concern can be used in calculating the arithmetic mean. Section A1.0 of the guidance document has been modified to reflect this.</p>
56	B-2	B2.1.1		<p>Is the statement regarding remediation standards for 1,2-Dichloroethene (trans) (residential 300 mg/kg), styrene (residential 90 mg/kg), and anthracene (non-residential 30,000 mg/kg) rounded to two significant figures provided as an example or are they exceptions? Please clarify. (5)</p>	<p>The original intent was to clarify that direct contact soil remediation standards which appear to be listed as one significant figure are, in fact, two significant figures. Upon consideration, the addition of this wording is more confusing than helpful. Therefore, the listing of remediation standards for these compounds has been deleted.</p>
57	51	B2	1.1	<p>Need to include rounding examples for standards &lt; 1. Realistically, all examples should be bullet points for clarity. (4)</p>	<p>Examples of data rounding for values less than 1 have been added to Section B3.0 of the guidance document. The layout of Section B3.0 is such that use of bullet points doesn't not provide more clarity.</p>
58	53	B2	4	<p>No mention of subslab (4)</p>	<p>A discussion of ground water screening levels, soil gas screening levels, and rapid action levels has been added to Section B2.4.</p>
59	B-4	B2.4		<p>Is the statement regarding the residential indoor air screening levels for chloroethane (1000 ug/m3), dichlorodifluoromethane (100 ug/m3), styrene (1,000 ug/m3), and xylenes (100 ug/m3) rounded to two significant figures provided as an example or are they exceptions? Please clarify. (5)</p>	<p>The original intent was to clarify that indoor air screening levels which appear to be listed as one significant figure are, in fact, two significant figures. Upon consideration, the addition of this wording is more confusing than helpful. Therefore, listing of indoor air screening levels (now remediation standards) for these compounds has been deleted.</p>
60	B-5	B3.1 B3.2		<p>Consider allowing for either the common "half rounds up" rule that is the default rounding method in excel and other programs or the proposed use of Banker's Rounding rules or odd /even rounding (i.e., if the first number beyond the significant figure is five, and there are no numbers beyond this five (except zeros), then the significant figure is rounded to the closest even number...). Both are legitimate but the latter can be unnecessarily complicated, especially for larger data sets and database systems without any clear advantage or benefit. Common rounding may result in a slightly more conservative (more protective) outcome - e.g., if there are a lot of "0.5s" they all get rounded up and your mean may exhibit a slightly high bias. Banker's Rounding is an arbitrary method to counter this bias but is not warranted for environmental data because the potential for numerous "0.5s" in a typical set of environmental data is unlikely. The text should be revised to provide flexibility for professional judgement. (5)</p>	<p>The soil, soil leachate, and indoor air remediation standards contained in the amended Remediation Standards, N.J.A.C. 7:26D were rounded using the rounding rules contained in Section 6 of the American Society for Testing and Materials (ASTM) Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications (ASTM E29-13). For consistency purposes, this guidance document is recommending that the referenced ASTM protocol be used when rounding analytical data (see section B3.0).</p>