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August 21, 2026

John Fitzgerald, PE
Massachusetts Department of Environmental Protection (MassDEP)
150 Presidential Way
Woburn MA 01801

Dear John,

The LSP Association (LSPA), a professional association of LSPs and other environmental professionals, appreciates the opportunity to review and comment on the draft guidance titled, ***Characterization of Petroleum Contaminated Sites*** (June 2026).

The enclosed comments are informed by Massachusetts LSPs and other environmental professionals, including members of the LSPA's Regulations and Technical Practices Committees, our Risk Assessors Subcommittee, and the LSPA's membership more broadly. The LSPA supports MassDEP's goal of providing practical guidance that promotes consistent site characterization and decision-making while remaining aligned with the MCP. As petroleum releases continue to represent a significant portion of disposal sites managed under the MCP, updated technical guidance will be a valuable tool for LSPs, environmental professionals, regulators, and stakeholders alike.

Our detailed comments, enclosed for your consideration, include suggested revisions intended to strengthen the technical foundation, clarity, and usability of the final guidance document. In particular, we encourage MassDEP to:

- Consider opportunities to more clearly distinguish petroleum-specific issues from broader vapor intrusion and risk assessment topics;
- Ensure consistency with MCP terminology, risk assessment principles, and other MassDEP guidance documents; and
- Clarify technical concepts related to petroleum sampling, analytical methods, data usability, and risk characterization.

In addition, we included suggestions that can help improve organization and clarity in several sections, and correct technical, editorial, and formatting issues.

We appreciate MassDEP's willingness to solicit stakeholder input during the development process and would welcome the opportunity to discuss any of our comments in greater detail.

Sincerely,

Sue Bator, LSP
GEI Consultants, Inc.; LSPA President

Mariellen Morris
Executive Director, LSPA

Encl.: LSPA Comments on Characterization of Petroleum Contaminated Sites Guidance

CC: Millie Garcia-Serrano, Assistant Commissioner, MassDEP BWSC; Brian Roden, Acting Director of Policy and Development, MassDEP BWSC

LSPA Comments on Characterization of Petroleum Contaminated Sites Guidance

Guidance Document: https://www.mass.gov/doc/public-comment-draft-characterization-of-petroleum-contaminated-sites/download
Background Documentation:
https://www.mass.gov/doc/public-comment-draft-characterization-of-petroleum-contaminated-sites-background-documentation/download

Provided below are the LSP Association's detailed comments on the above stated MassDEP Guidance.
***"Page No." refers to the pages in the MassDEP Guidance document.*
***"Section/Subsection" refers to the Sections in the MassDEP Guidance document, unless otherwise noted.*

The LSPA has made every effort to state the issue of concern, provide a specific example wherever possible, and propose suggested language changes (in red font color), where appropriate.

Page No.	Section/Subsection Number	LSPA Comment
General	*General*	The guidance does not contain a specific discussion of exposure pathways, outside of assuming exposure to soil, groundwater, and potentially vapor intrusion. Consider including discussion of other relevant exposure pathways, such as volatilization from groundwater into a trench for a construction/utility worker, which could be a complete pathway at a petroleum site.
General	*General*	There are many instances where abbreviations are defined multiple times (e.g., MtBE, PAHs, GC/MS). As there is an abbreviations index in the front of the document, suggest defining each term once in the document and then using the abbreviation thereafter.
General	*General*	There are many instances of the use of quotation marks, which are not for quotations but are used for terminology in the document. Many of these quotation marks appear to be superfluous, or, at a minimum, confusing. Suggest removing quotation marks where possible, or if the intended meaning of the text is something other than what is stated, then edit the text to state what is actually meant rather than relying on quotation marks.
List of Acronyms	TMB	"Trimethyl benzene" should be written as "Trimethylbenzene". Add API American Petroleum Institute. Add US EPA and define.
1	1.1	In the third paragraph, it should be "air-phase" not "air-phased"
3	2.1	In the paragraph below Table 2-1, suggest defining "aromatic" so it is clear how aromatic compounds differ from aliphatic.
3	2.1	Second paragraph below Table 2-1, instead of "designated" carcinogens, suggest "classified as" or "categorized as," which is consistent with EPA terminology for carcinogens.
4	2.2	Second bullet, put period at end instead of comma
4	2.3	Section 2.3 states that the APH analysis quantifies "hydrocarbon ranges…of interest in air." The APH method only quantifies C5-C8 aliphatics, C9-C12 aliphatics, and C9-C10 aromatics. This lack of volatility for ranges with higher carbon numbers is also suggested by the statement in Section 2.2, which says that the purge-and-trap is used for volatiles (i.e., VPH) and solvent extraction is used for semi-volatile/extractable organics (i.e., EPH). If C11-C22 aromatics and C13-C18 aliphatics are not considered to be sufficiently volatile for APH and are identified as semi-volatile for the purposes of method development, this suggests that they should not be evaluated for an inhalation pathway, in particular the inhalation pathway for a residential drinking water scenario. Because of how the MassDEP Short Form for Resident Exposed to Chemicals in Drinking Water is set up, any chemical that is entered into the spreadsheet and has an RfC (or IUR) and also has a Henry's Law Constant will have a hazard quotient calculated, even if it would not otherwise be considered to be a volatile chemical. Please revisit the Drinking Water Short Form to address chemicals such as C11-C22 aromatics that contribute substantially to the risk calculations) but that are considered of low volatility. This is also supported by the statement in Section 4.3.3 that C11-C22 are unlikely to be a VI issue.

4	2.4	Third bullet: Replace "risk driver" with "cleanup driver". In general, petroleum constituents are not the primary risk drivers at a site, with the exception of benzene. The use of the phrase "risk driver" throughout the document is confusing because it does not have an MCP definition nor is defined in this document. Risk has a specific definition based on exposure, toxicity, and dose. Recommend deleting use of "risk driver" throughout.
5	2.5	Remove capitalization of "Ethanol" and make consistent throughout the document use of lower-case for target analyte names.
6	3.1	The statement that begins on the bottom of page 5 and continues onto page 6 regarding the "overlooked" chromatographic data seems misplaced in this section, where the intent would appear to be to describe what is gas chromatography. If the guidance intends to discuss further the use of chromatograms in petroleum forensics, this should be a part of the guidance. Suggested revision: "While most data users focus on the quantitative data produced by these procedures, the qualitative information provided by the chromatographic "fingerprints" generated for each sample in each method **is also valuable**. These chromatograms **can provide insights** on hydrocarbon chemistry, product type(s), degree of weathering, presence of non-petroleum contaminants, and, in water samples, high-bias results due to the presence of undissolved NAPL. **For further discussion on the use of chromatograms, see Section X.X.**"
6	3.1	Delete parentheses around (30-100 meter long +/-); they are extraneous
6-7	3.1	What is the meaning of italics in this section? Please remove italics from general words (e.g., "elute") and only use italics where they are otherwise indicated (e.g., "pi" for pi bonds") and for document titles.
7	3.1	In the paragraph before Section 3.2, the parentheses around x and y are unnecessary.
12	3.2.3	Suggest removing the statement at the end of the third paragraph: "which in some cases will mean the difference between being above or below "typical" range concentrations, which has implications to site closure." It would be more useful to point out that practitioners should check that their labs are following the mechanism in the APH method to eliminate those compounds from quantification, since that would prevent the issue altogether. It's impossible to say at any given site whether the presence of these compounds would lead to concentrations either above or below any particular threshold.
12	3.2.3	What is the rationale for enclosing the term "background" in quotation marks in the third paragraph? (This is also done in the following paragraph and in subsequent locations.) For the purposes of indoor air sampling, it would be more useful to simply define "background" and then use the term without quotation marks, which suggests that "background" has some other meaning and does not mean background.
12	3.2.3	Fourth paragraph, insert "potentially," as in "which could **potentially** be related to a subsurface vapor intrusion pathway." For the examples provided, PCE and TCE may still be present in indoor air due to background sources. Also suggest deleting phrase "and could be posing unacceptable risks to building occupants." It is not possible to opine on potential risk without further information.
13	3.2.3	First bullet on page: The point regarding the potential presence of cVOCs in a petroleum air sample is an important one. Nonetheless, this is a petroleum guidance document and not a vapor intrusion guidance document. Suggest deleting text in this bullet following the "of most concern..." sentence and replacing it with a statement to consult MassDEP's Vapor Intrusion Guidance if a non-petroleum related VI pathway is suspected. At a minimum the statement that "while the presence of degradation product cis-1,2-dichloroethylene is almost always indicative of a vapor intrusion pathway" should be deleted, or else references should be provided that support this statement.
13	3.2.3	Second bullet on page, a typical indoor air concentration (TIAC) is neither a risk nor a remedial-based metric. Suggest instead "unless one or more hydrocarbon ranges exceed a relevant metric (e.g., Indoor Air Threshold Value)"

13	3.2.4	First sentence states that the methods can produce a "false positive" or over-inflated concentration. A false positive is a different result than a high bias (which would be a better way to refer to this rather than "over-inflated"). It appears that what this statement means is a high biased result (e.g., concentration higher than actual) rather than a false positive (e.g., chemical detected but is not actually present). If that is the case, suggest "they can produce concentration data for these individual compounds that is biased high." This sentence would also be better served by putting the "because" clause at the end, rather than starting with two conditional clauses.
13	3.2.4	The overall objective of this section is unclear. The general standard of practice for EPH/VPH analyses is to use the VPH 2.1 method (GC/MS) and the EPH method with 8270, which will obviate the issue addressed by this section. The section as written therefore seems somewhat backward. Suggest the following: 1) state that the VPH 2.1 (2017) method and EPH with 8270 address a potential issue with high bias reporting of target analytes that can arise with VPH by GC/PID/FID and EPH (without 8270) and 2) Then state why GC/FID/PID has this issue and similar point for EPH. Then raise the point that CG/PID/FID may be a more cost-effective option when the presence of target analytes is likely minimal.
13	3.2.4	Italicized section: Define "clean closure" or rephrase for clarity. This phrase is not defined in the MCP.
14	Table 3-1	The guidance earlier alludes to other methods for collecting air samples other than passivated canisters (e.g., Section 3.2.3 Paragraph 2). If other containers are considered appropriate for collecting samples for APH analysis, suggest also listing them in this table.
14	3.3	Last sentence: Please define what is meant by "sufficient data are available to demonstrate the efficacy of sample preservation" and what the process will be for consideration by MassDEP.
16	3.4	The statement that review of QA/QC is "beyond" most users is unnecessary. Suggest removing the first part of this sentence and starting with "in addition," or, rephrasing to state that a comprehensive review is "not typically warranted."
16	3.4	In the first bullet at the bottom of the page, the statement is made that lack of methanol preservation would result in data that are "highly suspect," which is non-specific and does not indicate to the reader how the data would be suspect. Suggest replacing this with a more informative phrase, e.g., "would not be considered usable," or "would have a substantial low bias" etc. Similar comment for second bullet, which also uses the tem "suspect." Please specify how the data may be compromised.
20	3.6.1	First full paragraph: Please re-write last sentence for clarity and provide an example for why this approach would be used.
21	3.7	Second sentence: Clarify what is meant by "so-called "field" methods". Why is "field" in quotation marks, the REDUA policy does not use quotation marks. What is meant by "so-called"? Please elaborate.
21	3.7	First bullet: Why is "stand alone" in quotation marks? What is meant by "stand alone"? Please elaborate.
21	3.7	Second bullet: Why is "lab" in quotation marks? What is meant by "lab"? We suggest that suggest that **("lab") data** be replaced by **conventional laboratory data**.
21	3.7	For the last bullet on the page, suggest further stating that guidance on assessing the usability of field data is discussed in Section 7.2 of MassDEP's REDUA Guidance (25-350).
22	3.7.1	Third arrow bullet: Elaborate on what is meant by "quick "shake out" extraction technique".
22	3.7.1	Last bullet, the term "preferred pathways" is used - this is more typically referred to as "preferential pathways."
23	Table 3-3	Recommend formatting this table so that the entire UV Fluorescence row is visible on the same page.
23	Table 3-3	Suggest revising the PID soil gas row to include the use of this tool for screening preferential pathways for VI.
23	Table 3-3	Check for missing punctuation at end of sentences throughout table.

25	3.7.2	Consider revising the first sentence to be less definitive. While it is agreed that site characterization is probabilistic, the concept of "higher certainty" is vague and has no meaning relative to the MCP. Further, more data does not always lead to stronger conclusions. A similar statement is made at the beginning of Section 4.1.
26	4.0	In the second line, suggest "to receptors from site-related OHM" instead of "to pollutant receptors." Also suggest deleting "pollutant" in the second paragraph; "potential receptors" is sufficient. Suggest deleting "pollutant" in subsequent instances, or finding another term to use instead.
26	4.0	Suggest referencing 310 CMR 40.0903/0904 relative to adequate characterization of N&E for risk characterization.
26	4.1	It would be helpful to have an introductory "signposting" statement to the subsections 4.1.1 etc. The organization of Section 4.1 comes across as somewhat scattershot, as it starts out with PID, then presents a very brief discussion of sampling different media (see next comment), followed by media-specific discussions.
26	4.1	Suggest rewording "less-than-optimal" levels of certainty. Perhaps, "However, conventional approaches are expensive, which may limit the number of samples **analyzed, potentially resulting in a reduced level of certainty."**
26-27	4.1.1	Last bullet mentions a PID meter and states that they are "incapable" of characterizing low ppbV breathing zone levels. This neglects the existence of ppb-level PID instruments (e.g., ppbRAE) that can measure total VOCs to a level of 1 ppbV. Suggest revising this statement to reflect that there are instruments that can measure ppbV-level VOC concentrations, but that one must request such an instrument since typical PIDs only measure to 1 ppmV.
27	4.1.2	Define EPC (as opposed to several paragraphs later) and discuss in more detail why there would be a difference in cost between judgmental and systematic sampling and define these sampling approaches or provide a reference.
27	4.1.2	The intent of this section is very unclear, as it does not seem to follow on directly from the PID discussion nor necessarily lead into the next section on soil characterization. Suggest instead incorporating these points into the media specific discussions, or, at a minimum, adding text to provide additional context and rationale for the information therein.
28	4.1.3	This section is very brief considering that soil is a primary sampling medium at many sites. Some of this would be alleviated by moving the text from 4.1.2 into this section, since Section 4.1.2 discusses the point that judgmental sampling is typically more appropriate for petroleum sites. Suggest the following: 1) start with text from Section 4.1.2, 2) then discuss "a common scenario..." and 3) incorporate the text from the (current) first paragraph of 4.1.3 into the second paragraph. Also, please clarify that the intent of the screening approaches is to provide a basis for selecting samples for quantitative laboratory analysis. This is implied but should be explicit - e.g., in the first paragraph, instead of "this can be accomplished" state that "identification of samples for quantitative analysis can be accomplished..." Lastly, this section uses the term "hot spot" apparently in a generic sense - "Hot Spot" has a specific definition under the MCP, and it is unclear whether this section means "hot spot" per the MCP or just an area of locally higher concentrations of Constituents of Potential Concern (COPCs). This section should not use the term "hot spot" unless it intends it to mean "hot spot" as it is defined in the MCP.
30	4.1.5	The formatting on this page is confusing. Is most of the page a Rule of Thumb and therefore should be italicized? Should the indented and italicized items all be italicized and underlined? Would the use of bullets make this more clear? At what point does the Rule of Thumb end and the main text pick back up?
32	4.1.5	In the text box towards the top of the page, suggest "to produce a false negative or low bias"
32	4.1.5	The example at the bottom of the page is helpful - if appropriate, consider adding a general recommendation to resample using low-flow techniques if NAPL entrainment is suspected. A sentence could be added to the end of the prior paragraph, such as, "If the chromatogram contains a hump and therefore NAPL entrainment is likely, a groundwater sample should be re-collected using low-flow techniques."

33	4.1,6	First paragraph, delete "8-hour or 24-hour" and "basement and first floor," since those are site-specific decisions. The sentence is still accurate without them. If DEP wishes to provide further information about soil gas and indoor air sampling, the reader should be referred to MassDEP's VI Guidance for further details on determining how/when/where to collect samples.
33	4.1.6	Last paragraph, remove the majority of this paragraph as cVOC VI is outside the scope of this document. Suggest keeping first sentence and then stating (per prior comment) that if there is the potential for cVOC VI, refer reader to MassDEP's VI Guidance.
34	4.2	"Contaminants of Concern" has a specific meaning relative to risk characterization. Suggest instead titling this section "Analytical Parameters of Interest and Data Processing" (or equivalent)
35	4.2.1	The font in the first paragraph appears different from the remaining text on this page.
35	4.2.1	It is understood that the objective of this section is to convey the importance of considering whether non-petroleum-related site characterization is warranted. While its intent is reasonable, the suggested approach would be to delete this section and convey this message through the general site characterization discussion in the guidance, perhaps as a third new paragraph under Section header 4.0 that states the need to consider the potential for secondary releases (as in, additional to the petroleum release) to exist. This concept of assessing the nature and extent of contamination is universal across MCP Disposal Sites and is not limited to a petroleum/non-petroleum dichotomy. The basis for developing a site characterization approach should be the conceptual site model, which includes understanding of potential sources, migration pathways, etc. that is then used to select sampling locations/depths, and sample analyses. As written, Section 4.2.1 narrowly focuses on a very small potential subset of secondary releases, which is inappropriate given the potential universe of releases that could potentially exist.
35	4.2.2	First arrow bullet: Please define what is meant by the word "split" as opposed to enclosing it in parentheses.
35	4.2.2	Second arrow bullet: The italicized statement "Accordingly, in such cases, the highest reported value should be used." appears to be in direct conflict with the supporting Background document that on Page A-5-5 states, "In the case of split samples, the EPH quantification of naphthalene would appear to be more accurate than the VPH procedure." Additionally, recommending that the environmental professional use "the highest reported value" regardless of whether that value is accurate is in direct conflict with the REDUA policy and CAM. Recommend deleting the italicized statement and inserting a discussion about the importance of using accurate results as opposed to the most conservative results.
36	4.2.2	First box below Table 4-2: the rationale and technical basis for including the statement in this box is unclear. The selection of chemical analyses for site media should be based on the CSM and the understanding of the release. In that case, there should not be a need for "all" groundwater samples within 500 ft of a drinking water supply to be analyzed for the parameters listed here. In addition, this statement appears to contradict and potentially be superfluous to the information in Table 4-2, which already indicates when EPH and/or VPH are necessary in GW-1 areas (see for example the diesel/#2 fuel rows). These qualifications are sufficient for the purpose of establishing when additional testing is needed because a Site is in a GW-1 area.

37	4.2.3, Table 4-3	**Re the subject document, specifically, Table 4-3:** Recommended Target Analyte List for Petroleum Products. This table lists various petroleum products but it does not include transformer fluids such as non-PCB mineral oil dielectric fluid (non-PCB MODF). I have overseen many transformer releases of MODF and performed various lab analyses including the full EPH and full VPH and, over the years, I have come to see that the appropriate lab analysis for non-PCB MODF in soil is EPH carbon fractions ONLY. The associated polycyclic aromatic hydrocarbon (PAH) target analytes are typically non-detect unless the transformer was on fire when it leaked. Therefore, I recommend the policy include non-PCB MODF as a "Petroleum Product" in the table with the "Recommended Target Analytes" being EPH carbon fractions ONLY for soil and groundwater. Also, some new transformers may now contain FR3 oil that is made from vegetable oil. I have only done a few releases from transformers that contained such oil; I tested both VPH and EPH just to be safe. I think that FR3 oil should also be added as a "Petroleum Product" in the table, but I will leave it to MassDEP as to what the "Recommended Target Analytes" would be.
37	4.2.3	This comment addresses the text paragraph at the bottom of page 37, suggesting the consideration of PFAS analysis in certain scenarios. This comment echoes the disucssion in a prior comment regarding Section 4.2.1. In brief, because there are many potential secondary releases, it appears selective to focus on a specific potential release relative to sample analyses. If it is desirable to include a discussion of additional sample analyses in this section, suggest editing to state that additional analyses beyond those recommended in Table 4-3 be based on the Conceptual Site Model.
40	4.2.6	First sentence: Clarify what is intended when putting parentheses around the word "only".
40	4.2.6	For the background elements as listed, confirm that "manganese" was intended and not "magnesium." Also suggest adding potassium to the list of these elements (as well as magnesium if manganese is correct).
40	4.3	In the first sentence "always" seems excessive - suggest adding a qualifier that VI must be investigated when an occupied building is present. If no occupied building is present, a VI pathway by definition cannot exist.
40	4.3	third paragraph, suggest deleting "more subtle and insidious" so it is "impacts may only be discoverable..."
42	4.3.1	First bullet, clarify that this would be the "applicable" SSSG SV (i.e., commercial or residential, depending on building use)
43	4.3.2	The "*Soil Data*" bullet appears to be in a different font than the rest of the page.
43	4.3.2	Based on the draft text, it appears the *Screening Data Approach for Limited On-Site Fuel Oil Spills* is supposed to be based on post-remedial conditions. Under this approach, one of the conditions listed and required to demonstrate a VI pathway is unlikely to exist, is that the volume of fuel oil released was likely less than 10 gallons (below the RQ of many fuel oils). While recognizing that there may be conditions where releases below the RQ may require remedial action, suggest further clarification on which of these conditions the screening approach is intended for.
45	4.3.3	First sentence of last paragraph: Provide a reference for the statement "Note that averaging of groundwater data (in space or in time) is not permitted when inputting data into this matrix; in general, the highest concentrations of contaminants in shallow groundwater in the 12 months preceding this evaluation should be the designated groundwater values." Is this an MCP requirement? If so, provide citation.
49	5.0	The statement "how clean is clean enough" is unnecessary. Suggest replacing with language that is based on the MCP, for example, "assess risks and determine whether a Condition of No SIgnificant Risk has been achieved."
49	5.0	It seems a judgement statement to say that Method 1 is the "easiest and most certain" approach. Suggest different language such as "most prescriptive" or "most straightforward"
49	5.0	Suggest deleting "6" in this paragraph as it is slightly unclear - 6 standards or standards for the 6 carbon ranges? The sentence still makes sense without the number.

49	5.0	Suggest deleting the reference to Reportable Concentrations (including the MCP citation in Section 310 CMR 40.0300) in this paragraph. As this section is about risk characterization, it is not appropriate to discuss RCs here, because RCs are not used in a risk characterization. The point is taken that TPH is not reportable if the EPH fractions are not reportable; however, this should be mentioned elsewhere and not here.
49	5.0	The guidance is generally silent on the concept of Hazard Identification in a risk assessment, which typically includes the identification of the data used to support the risk characterization and selection of COPC. Some issues of interest to petroleum sites that could be discussed relative to Hazard ID are whether/how to incorporate confirmatory and/or "clean" soil samples - so, determining which data are representative of the Disposal Site - and COPC selection with multiple analytical methods. For example, some C9 and C10 aromatics are analyzed as individual compounds in EPA 8260 (the substituted benzenes) but are also included as C9-C10 aromatics in the VPH analysis, so they could be excluded as COPC for the VOC analysis to avoid double-counting.
49	5.0	First sentence of last paragraph: Consider rephrasing. Method 1 standards are not used to quantitatively calculate risk and therefore cannot overestimate risk. They are used to characterize risk based on generic conservative site conditions and therefore can be easily exceeded, which does not necessarily mean there is risk at a site. In such cases, use of a Method 2 or 3 risk assessment approach may be advisable and cost effective.
50	5.1.1	Suggest revising the language to be closer to what is stated in the MCP, which is that an arithmetic mean "may be used" as the EPC if the requirements of the 75/10 rule are met. For example, "The most used approach...is the 75/10 rule, where the arithmetic average concentration in soil at the Exposure Point may be used as the EPC if, based on..."
50	5.1.1	Suggest using a different term in the UST paragraph other than "hotspot." Per the MCP definition, hot spots are not applicable to groundwater. For example, "area of localized higher concentrations"
51	5.1.1, last paragraph, last sentence	Delete extra "t" in "NOT".
51	5.1.2	Suggest "data from each well is used to calculate a location-specific EPC"
52	5.1.3	The recommendation to use a maximum detected concentration in indoor air is inconsistent with MassDEP's VI Guidance, which states that EPCs for a long-term exposure should be based on multiple rounds of sampling, and that averaging is acceptable provided there are sufficient data. The guidance herein makes an assumption about the number of sampling events for which data may be available, which may or may not be an accurate assumption. The guidance should allow for greater flexibility in the calculation of indoor air EPCs. The VI Guidance also differentiates between Imminent Hazard Evaluations (for which a maximum is appropriate) and long-term risk evaluations (for which averaging may be acceptable). The statement in the box also appears to conflict with the statement later in the section that temporal and/or spatial averaging of data may in some cases be appropriate.
53	5.2	This section states that there are no MCP standards for indoor air; however, this statement is irrelevant because a VI pathway cannot be evaluated using a Method 1 approach, regardless. Suggest deleting this sentence.
54	5.2	While it is accurate that soil categories are mutually exclusive, consider mentioning that soil can be categorized differently based on current versus future conditions. For example, soil may currently be S-3, but may be assumed to be S-1 in a future scenario where pavement is removed.
54	5.2	Fourth paragraph, "risk-based" concentration not "risked-based"
55	5.2.1	The "75/10 rule" is a basis for identifying EPCs and is not a risk assessment process. Suggest referring to this instead as "Method 1 Risk Assessment Process incorporating the 75/10 Rule"
56	5.2.2	"preferential pathway" rather than "preferred pathway" (Please make this a global edit)

58	5.3	In the box, clarify that it is the "standards" for specific contaminants that exceed Method 1 Standards that can be modified. The specific contaminants are not what are being modified.
59	Table 5-5	Table 5-5: Recommended Surface Water Quality Guidelines cites (MassDEP, 2024a). Add a bibliographic citation to Section 8.0 References for MassDEP, 2024a.
65	5.4.1	In the PS/GW-1 bullet, third sentence, this should be revised to state that "the exposure point concentrations of site chemicals of concern in GW-1 wells must be at or below drinking water standards," consistent with the statement in 310 CMR 40,0993(11)(a).
66	5.4.3	(MassDEP, 2024a) is identified as the source of information listed in Table 5-6. There is not a reference provided in 8.0 for MassDEP, 2024a. Is this reference document also the source of the data listed in Table 5-5?
67	6.0	Suggest deleting statement that "simply stated, it isn't clean until it's clean." It is unclear what this means. This also obscures the key point of this box, which is that cumulative risk for a Disposal Site needs to be considered to achieve site closure.
68	6.2	Replace (API, 1998) with (Newell and Connor, 1998); API was the publisher.
71	Table 6-1	Consider revising the cited author in the title of Table 6-1 from (Golder Associates, 2008) to (BC Ministry of Environment, 2021). Table 6-1 LNAPL Stability Action Levels (Golder Associates, 2008) appears in this public comment draft and in MassDEP Policy #WSC-16-450 (Light Nonaqueous Phase Liquids (LNAPL) and the MCP: Guidance for Site Assessment and Closure) as Table 2. Both tables cite Golder Associates, 2008. The reference provided in this public comment draft does not include a URL. Policy #WSC-16-450 provides a 2010 reference for Table 2 - British Columbia Ministry of Environment (with Golder Associates) Protocol 16 for Contaminated Sites: Determining the Presence and Mobility of Nonaqueous Phase Liquids and Odorous Substances; May 2010. http://www.env.gov.bc.ca/epd/remediation/policy_procedure_protocol/protocols/pdf/protocol-16.pdf. This URL is not current. This document, Protocol 16 for Contaminated Sites, by the British Columbia Ministry of Environment (for whom Golder originally created this table) was revised in 2021. The values in the Table 1 of the BC Ministry of Environment document are the same as reported in Policy #WSC-16-450. An updated and downloadable reference for this document would be: British Columbia Ministry of Environment and Climate Change Strategy, Protocol 16 for Contaminated Sites, Determining the Presence and Mobility of Nonaqueous Phase Liquids and Odorous Substances, Version 3.0, February 2, 2021. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/p16_jan_2021_revisions_final_signed.pdf
73	6.6	We concur that there are cases where remaining NAPL will necessitate an AUL, per the first portion of Section 6.6. However, the information in the first box on the page appears to provide a very prescriptive approach for demonstrating that NAPL is not present at a thickness greater than a 0.5 inch. This determination should be a site-specific evaluation that is conducted by the LSP and supported by the site data. With that in mind, the following edited version of the text is suggested: At disposal sites where more than ½-inch of LNAPL was visibly present in any excavation, boring, or monitoring well at any time, an AUL will generally be required when filing a Permanent Solution, unless at least one year of at least four subsequent seasonal gauging efforts has demonstrated less than or equal to 1/2-inch of visible NAPL in every monitoring point during every gauging event. At disposal sites where site remediation has removed the source of the NAPL, an alternative demonstration of site stability may be appropriate to support a Permanent Solution without an AUL.

73-74	6.6	This guidance proposes that an AUL is "required" when sub-slab soil concentrations meet a certain threshold, so as to maintain current conditions that are presumptively limiting the potential for vapor intrusion. Conceptually, this is similar to the discussion of future conditions in Section 2.3.3.2 in MassDEP's Vapor Intrusion Guidance. While the consideration of potential future conditions is consistent with guidance and the MCP, the approach as proposed in this petroleum guidance is overly prescriptive in its reliance on the specific concentrations as a basis for evaluating potential future conditions. As conservative thresholds, the concentrations in Table 6-2 are reasonable, but it is not necessarily true that any SSSG concentration above these thresholds should necessitate an AUL. This is illustrated directly in this draft guidance by the inclusion of a risk-based approach in the third paragraph of page 74. To address this, suggest revising the headers in Table 6-2 so that the second to last column is "AUL Screening Sub-Slab Conc with 70x DAF" and last column is "Alternative approach indicated" (or similar). Suggest also revising the title to make it less determinstic, e.g., "Simplified Approach For Screening Sub-Slab Soil Gas Concentrations for Potential Future Use Restrictions." Regarding the discussion in the "alternative approach" paragraph, suggest that this be revised to be consistent with the VI Guidance, which states that SSSG concentrations be attenuated to IA using the DAF of 70, and then risk be calculated. This will avoid confusion that will likely arise by using an HI of 70 and a cancer risk of 7x10-4 as the basis for evaluating the existence of NSR, rather than the MCP defined thresholds of 1 and 1x10-5.
80	7.4	Should MassDEP 2007b (an internal document) be replaced with reference to MassDEP 2026, “Characterization of Petroleum Contaminated Sites, Background/Support Documentation for the Development of Publication Guidelines and Rules of Thumb”, May 2026.
84	7.7.1	The second paragraph discusses EPH concentrations that may remain in soil at a property. It should be pointed out that a "hot spot" cannot be created through remediation. Therefore, if other soil is excavated/remediated and other small areas of contamination remain, these would not then be considered "hot spots" by virtue of simply being the remaining areas of contamination. Suggest revising this paragraph so that it is more specific about what and what does not constitute a hot spot in this scenario.
88	8.0	Replace Hydrocarbon with Hydrocarbons in this reference: API, “Guide for Assessing and Remediating Petroleum Hydrocarbon in Soil”, API Publication 1629, October 1993.
88	8.0	Replace API as author with author names Newell, Charles and Connor, John in this reference: API, “Characteristics of Dissolved Petroleum Hydrocarbon Plumes”, American Petroleum Institute, December 1998.
88	8.0	Add journal name *API Soil and Groundwater Bulletin 8* before American Petroleum Institute in this reference: API, “Characteristics of Dissolved Petroleum Hydrocarbon Plumes”, *API Soil and Groundwater Bulletin 8*, American Petroleum Institute, December 1998.
88	8.0	Replace **BSED** with Based in this reference: MassDEP, “Interim Final Petroleum Report: Development of Health-**BSED** Alternative to the Total Petroleum Hydrocarbon (TPH) Parameter”, Office of Research and Standards, August 1994.
88	8.0	This document cannot be located on line: Golder Associates, “Guidance of Assessment of Light Non-Aqueous Phase Liquid Mobility for Site Classification Purposes in British Columbia”, October 9, 2008. An updated and downloadable reference for this document would be: British Columbia Ministry of Environment and Climate Change Strategy, Protocol 16 for Contaminated Sites, Determining the Presence and Mobility of Nonaqueous Phase Liquids and Odorous Substances, Version 3.0, February 2, 2021. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/p16_jan_2021_revisions_final_signed.pdf
88	8.0	Add *API Bulletin No. 14* as the italicized title in this reference published by American Petroleum Institute: O’Reily et al., “Predicting the Effect of Hydrocarbon and Hydrocarbon-Impacted Soils on Groundwater”, *API Bulletin No.14*, American Petroleum Institute, ~~Number 14,~~ September 2001.

A-2	Appendix 1	The table in Appendix 1 indicates information re: OHM with “serious effects” is presented in Section 5.4.2, though it is actually presented in Section 5.4.1.
BACKGROUND/SUPPORT DOCUMENTATION FOR THE DEVELOPMENT OF PUBLICATION GUIDELINES & RULES OF THUMB (MassDEP Public Comment Draft May 2026)		
Background Document Page 5 of 13	4.2.4	Third Bullet: Correct the display font for units for the EDB GW-1 standard
Background Document Page 8 of 13	Tables 3, 4, and 5	Define "avg Xylene" and "Average Xylene" and discuss how these terms are different from "Xylenes (mixed isomers)".
Background Document Page A-1- 4	Last Sentence	Change "weather" to "weathered".
Background Document Page A-1- 9	Yellow Box at Top	Missing "less" in front of "than 50 ppmV".
Background Document Page A-4-3	Table 2	Define "Xylenes". Average or total sum of Mixed Isomers?
Background Document Page A-4-5	First Bullet	Change "real word" to "real world"
Background Document Page A-4-5	C9-C10 Aromatic Hydrocarbons (Last Paragraph)	Recommend breaking up the statement into multiple sentences for more clarity. The first word of the sentence also needs to be capitalized.
Background Document Page A-5-3	Individual PAH Analytes (multiple bullets)	Correct spelling of "2-methylnaphthalene" and make consistent whether individual PAHs are capitalized or lower case.