



**Primary Changes in the updated DEEP Reasonable Confidence Protocols as of 2024**

Topic	2024 Changes
Reporting Limits/Lower Limits of Quantitation (RLs/LLOQs)	<p>8260 (VOCs): aqueous &amp; soil values lowered</p> <p>8151 (herbicides): RLs added for added target analytes (MCPA/MCPP)</p> <p>EPH: hydrocarbon ranges in soil lowered</p> <p>APH: table created to clearly define RLs/LLOQs</p> <p>ETPH: increased in aqueous matrix</p> <p>6010 &amp; 6020 (metals): ranges clearly defined for aqueous &amp; soil matrices</p> <p>7000 (metals): ranges clearly defined for aqueous &amp; soil matrices</p> <p>TO-13 &amp; TO-17 (air methods): ranges clearly defined</p> <p>7196 (hex chrome): ranges clearly defined for aqueous &amp; soil matrices</p> <p>9000 (cyanide): ranges clearly defined for aqueous &amp; soil matrices</p>
Target Analytes	<p>6020 (metals): added notes that Hg quantitation via this method not ideal. Can use as a screening method for Hg.</p> <p>8151 (herbicides): added 5 analytes  <i>2,4-Dichlorophenoxy butyric acid (2,4-DB)</i>  <i>2-(2,4-Dichlorophenoxy) propionic acid (Dichloroprop)</i>  <i>2,4-Dinitro-6-sec-butylphenol (Dinoseb)</i>  <i>2-Methyl-4-chlorophenoxy acetic acid (MCPA)</i>  <i>2-(2-Methyl-4-chlorophenoxy) propionic acid (MCPP)</i></p> <p>8270 (SVOCs): added 5 analytes  <i>1,2-Dichlorobenzene</i>  <i>1,3-Dichlorobenzene</i>  <i>1,4-Dichlorobenzene</i>  <i>1,4-Dioxane</i>  <i>3-Methylphenol</i></p> <p>8260 (VOCs): added 5 analytes  <i>Ter-Amyl Methyl Ether (TAME)</i>  <i>Bromochloromethane</i>  <i>Diethyl Ether</i>  <i>1,4-Dioxane</i>  <i>Ethyl Tert Butyl Ether (ETBE)</i></p> <p>TO-13 (air): 1 analyte added  <i>1-Methylnaphthalene</i></p> <p>APH (air): table added to match MA CAM, less analytes than in original RCP to simplify</p>

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Dual Column Results	<p>When using dual GC columns to confirm detections of pesticides, herbicides, and/or PCBs, laboratories must report the higher of the two results.</p> <p>This guidance was not previously provided in the RCPs.</p>
Matrix Spikes	<p>Matrix spikes will be <b>required</b> for solid matrices (soil/sediment) for metals analyses (metals, hex chrome, mercury, etc.) to ensure EPs are demonstrating they have thoroughly evaluated metals concentrations in complex environmental media that have high potential for analytical interferences.</p>
Standard Reference Materials (SRMs)	<p>New recommendation to use standard reference materials (SRMs) for metals analysis. These may serve as a Laboratory Control Sample (LCS) that matrix matches the field samples. They are prepared by certified agencies to contain known concentrations of metals. This is an additional QC that can be useful for demonstrating the lab's proficiency with extracting and recovering metals of interest from solid matrices.</p>
Record Retention	<p>Original RCPs did not define a timeframe for record retention. The QA workgroup landed on a minimum of 5 years to ensure records are being retained to the minimum NELAC standards (i.e., EPA standards). Labs may need to retain records longer depending on the forms of certifications they hold.</p>
Laboratory Control Sample Duplicates (LCSD)	<p>This Quality Control (QC) sample was not included in the majority of the RCPs. The workgroup agreed it made sense to maintain consistency and include LCSD in all RCPs. This additional QC provides a demonstration of precision for all field samples included in an analytical batch which could be compiled of samples from different sites.</p>
Linear Dynamic Range (LDR)	<p>Only applicable to metals methods.</p> <p>Reference to the Linear Dynamic Range was adjusted to "Linear Range Check" to reflect the latest update to NELAC standards. NELAC recently removed the need for an annual test demonstration to establish the highest extent of the instrument calibration range. NELAC has shifted to an optional standard check during analysis, if necessary due to elevated sample concentrations.</p>
Extraction Methods	<p>Added solid-phase extraction (SW-846 3535) as an option to 8270, 8082, 8081, &amp; ETPH</p> <p>Added solvent dilution extraction (SW-846 3580) as an option to ETPH, 8151, &amp; 8270</p>

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QC Recovery Acceptance Criteria	<p>In most cases, recovery ranges for the various QC samples required in analytical sequences have not changed or they have been tightened per the latest EPA method updates.</p> <p>In some cases (i.e., metals methods), the recovery ranges in the EPA methods were not adopted based on feedback from multiple laboratories that report the EPA recovery ranges are challenging to achieve and will result in numerous lab notes that will confuse data users. The QA workgroup chose the middle ground between the wider ranges promulgated under the original RCPs and new, tighter ranges under the latest promulgated EPA Methods.</p>
Sample Container/Preservation	<p>Footnotes were added to all GC methods re: icing the samples:</p> <p><i>“If samples were received by the laboratory on the same day of collection and were stored and transported to the laboratory on ice, cooler temperatures above 6°C are acceptable.”</i></p>
1,4-Dioxane Analysis	<p>An appendix dedicated to 1,4-Dioxane was added to 8270.</p>
Holding Times	<p>8151 (herbicides):</p> <ul style="list-style-type: none"> <li>• The holding time post-esterification is now defined as “24 hours” to provide a definitive timeframe rather than the previous “as quickly as possible” language.</li> </ul> <p>8082 (PCBs):</p> <ul style="list-style-type: none"> <li>• The holding time is now updated from “7 days to extraction” to “1 year”.</li> </ul>
Miscellaneous	<p>Refined language in Table 1A in <i>all</i> RCP regarding various analytical details such as Response Factors, Relative Intensities, Interference Checks, Tuning Requirement, etc.</p>