Guidance on the Use of Method A, B, and C Cleanup Levels and Mixing Methods

There are three options called "methods" for establishing cleanup levels for your contaminated site, and you may use more than one method at a site. The method you choose depends on the contaminants and how the property will be used after cleanup. In this guidance, we summarize each cleanup method, and provide guidance on mixing the methods. For detailed information about establishing cleanup standards under the Model Toxics Control Act (MTCA) see:

1. CLARC guidance webpage[1] sorted by medium,
2. MTCA cleanup regulations and statute[2] (Ecology Publication No. 94-06), and
3. Focus on: Washington's environmental cleanup law[3] (Ecology Publication No. F-TC-94-130).

Note: The Washington State Department of Ecology (Ecology) may require establishing cleanup levels that are more stringent than those required under the applicable methods described below. That is, based on a site-specific evaluation, we may require more stringent cleanup standards when we determine that such levels are necessary to protect human health and the environment (WAC 173-340-704(3);[4] WAC 173-340-705(3);[5] WAC 173-340-706(3)[6]).

METHOD A

Method A is for cleanups that are relatively straightforward and routine,[7] or involve only a few hazardous substances. This method is typically used at smaller sites that do not warrant the expense of completing detailed site studies. Method A may be performed without consideration of additive effects due to multiple pathways of exposure, or due to multiple but few hazardous substances (for example, 10 substances or fewer).

Method A provides pre-determined cleanup levels that protect human health for the more common hazardous substances found in soil and groundwater, such as petroleum and lead. We developed these levels using the procedures in Method B, and developed Method A industrial soil levels using the procedures in Method C.

[1] https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Guidance
[2] https://apps.ecology.wa.gov/publications/summarypages/9406.html
[3] https://apps.ecology.wa.gov/publications/summarypages/ftc94130.html
[4] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-704 (Use of Method A.)
[5] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-705 (Use of Method B.)
[6] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-706 (Use of Method C.)
[7] "Routine cleanup action" is defined in WAC 173-340-200.

To use Method A at a site, all of the indicator hazardous substances established for either groundwater, soil, or surface water should have a Method A standard.[8] The cleanup standards for each media are discussed below.

NOTE: Under Method A, concentrations of chemicals deemed as indicator hazardous substances in soil, groundwater, and/or surface water, for which a Method A standard is not available, must use natural background or the practical quantitation limit (whichever is higher) as the cleanup level.

- **Groundwater**: WAC 173-340-720(3)(b)(iii)[9]
- **Soil**: WAC 173-340-740(2)(b)(iv)[10] and WAC 173-340-745(3)(b)(iv)[11]
- **Surface Water**: WAC 173-340-730(2)(b)(iii)[12]

Groundwater. Method A standards for groundwater include the following. See WAC 173-340-720(3)(b) and tables in WAC 173-340-900.[13] :

1. Concentrations listed in MTCA Table 720-1.
2. Concentrations established under applicable state and federal laws.

Soil. Method A standards for soil include the following. See WAC 173-340-740(2)(b), WAC 173-340-745(3)(b), and tables in WAC 173-340-900.

1. Concentrations listed in MTCA Tables 740-1 for unrestricted land use.
2. Concentrations listed in MTCA Tables 745-1 for qualifying industrial land use.
3. Concentrations established under applicable state and federal laws.

Surface Water. Method A standards for surface water include concentrations established under applicable state and federal laws. See WAC 173-340-730(2)(b)).

Air. MTCA does not provide procedures for establishing Method A air cleanup levels. Use Method B or C as appropriate to establish air cleanup levels.

[8] The selection of "Indicator Hazardous Substances" is discussed in WAC 173-340-708(2)
[9] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-720 (Groundwater cleanup standards.)
[10] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-740 (Unrestricted land use soil cleanup standards.)
[11] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-745 (Soil cleanup standards for industrial properties.)
[12] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-730 (Surface water cleanup standards.)
[13] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-900 (Tables.)

METHOD A – Frequently Asked Questions

Is mixing with other methods allowed?

In general, mixing Method A with other methods is not allowed. However, mixing methods may be appropriate at sites where there has been a release of total petroleum hydrocarbons (TPH). For more information see:

- Overview of cleanup standards, WAC 173-340-700(8)(b)(i) and
- Question No. 9 in Frequently asked questions regarding empirical demonstrations and related issues (Implementation Memo No. 15)[14]

Can I use Method A for one medium and a different method for another?

Using Method A for one medium and Method B or C for another medium isn't prohibited. **However, it's important to note** that although Method A levels were developed using the procedures in Method B, some of the table values may no longer be based on the most current human health-based toxicological data. For example, a Method A value for a hazardous substance in soil may be based on older oral toxicological criteria that are different from the current values used to calculate a Method B value for the same hazardous substance in groundwater. Ecology recognizes and will accept this inconsistency until we can address it in a future revision to the MTCA Cleanup Regulations.

Can I use Method A at a site where vapor intrusion (VI) is a pathway of concern?

Yes, but there may instances when Method A soil or groundwater levels may not be sufficiently protective, or when you may need to gather additional data to ensure the VI pathway is adequately addressed. See Appendix E in Ecology's Vapor Intrusion Guidance[15] for examples of such scenarios.

Can I use Method A at sites where groundwater may discharge to surface water?

Using Method A isn't necessarily prohibited when all hazardous substances in groundwater have both Method A groundwater and surface water standards, as previously defined. However, we recommend using Method B or C for developing soil and groundwater standards that are protective of human and aquatic life receptors at sites where groundwater may discharge to surface water. This is for two reasons: 1) the Method A soil and groundwater table values do not account for the protection of surface water or sediment, and 2) groundwater discharge to surface water is a complex pathway, rather than standard or routine.

[14] https://apps.ecology.wa.gov/publications/SummaryPages/1609047.html
[15] https://apps.ecology.wa.gov/publications/SummaryPages/0909047.html

Are Method A soil levels protective of terrestrial ecological receptors?

Method A soil cleanup levels don't address terrestrial ecological risk. When you're using Method A, you must also conduct a terrestrial ecological evaluation. See WAC 173-340-7490.[16]

METHOD B

Method B can be used at any site, typically when the site has multiple contaminants and is more complex. Method B is the most common method for setting cleanup levels when sites are contaminated with substances not listed under Method A, or when there are additional transport or exposure routes not accounted for under Method A, such as transport to surface water, the dermal exposure route, and the inhalation exposure route.

METHOD B – Frequently Asked Questions

Is mixing with other methods allowed?

Method C cleanup levels may not be used at Method B sites, but you can use Method A cleanup levels when:

1. A Method B value isn't available (e.g., lead in soil) -or-
2. You're accounting for applicable state and federal laws (e.g., PCBs in soil) -or-
3. The Method A level is based on natural background (e.g., arsenic in soil and groundwater).

Below are some examples of when it is appropriate to use a Method A level (see MTCA Table 720-1 and Table 740-1[17]) at a Method B site.

1. **Arsenic in soil and groundwater**. Method A arsenic levels for soil (20 mg/kg) and groundwater (5 µg/L) have been adjusted for natural background.[18] You can find more information about natural background concentrations of arsenic in soil and groundwater in Ecology's publications:

[16] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-7490 (Terrestrial ecological evaluation procedures.)
[17] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340-900 (Tables.)

[18] Method A statewide natural background levels may not be appropriate for every site. They need to be examined for applicability based on site-specific information (e.g., local soil type and geology) and in coordination with Ecology's regional offices and site manager.

a. Natural background soil metals concentrations in Washington state (1994)[19]

b. Natural background groundwater arsenic concentrations in Washington state: Study results (2022)[20]

2. **Lead in soil.** Method B lead soil cleanup levels are not available. The Method A lead soil cleanup level of 250 mg/kg is based on preventing unacceptable blood lead levels.

3. **Total PCBs in soil.** The Method A value for total PCBs in soil (1 mg/kg) is based on requirements in the Toxic Substances Control Act (TSCA),[21] which is an applicable federal law. The TSCA PCB soil level of 1 mg/kg may not be protective of the soil leaching to groundwater pathway, so a more stringent PCB level in soil may be required to protect groundwater and/or surface water (e.g., where groundwater discharges to surface water) beneficial uses.

4. **Total Petroleum Hydrocarbons (TPH) in soil and groundwater.** Method A TPH levels in soil and groundwater may be used where site-specific Method B TPH levels have not been derived.

5. **Gross alpha and beta particle activity along with Radium 226 and 228 in groundwater.** Method A values for these radionuclides in groundwater are based on applicable state and federal law: Group A Public Water Supplies regulations (WAC 246-290-310)[22] and the National Primary Drinking Water Regulations (40 C.F.R. 141.15).[23]

Do Method A levels need to account for additive risk and hazard when used under Method B?

Method A cleanup levels do not take into account additive cancer risk or noncancer hazard, whereas adjustments for these are required under Method B. Therefore, if a Method A cleanup level is being used under Method B, the Method A value may need to be adjusted downward to account for additive cancer risk and/or noncancer hazard.

[19] https://apps.ecology.wa.gov/publications/SummaryPages/94115.html
[20] https://apps.ecology.wa.gov/publications/summarypages/1409044.html
[21] https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act (15 U.S.C. §2601 et seq. (1976))
[22] https://app.leg.wa.gov/wac/default.aspx?cite=246-290-310 (Maximum contaminant levels (MCLs) and maximum residual disinfectant levels (MRDLs))
[23] https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations

METHOD C

Method C cleanup levels are established in a similar way as Method B: by using standards established under state and federal laws and risk-assessment equations. Under Method C, cleanup levels are based on less-stringent exposure assumptions and the target excess cancer risk is set at the higher threshold of one in one hundred thousand (1×10^{-5}).

Method C cleanup levels may be used to set soil and air cleanup levels at qualifying industrial sites (WAC 173-340-745), and to set air cleanup levels in manholes and utility vaults (WAC 173-340-750). For groundwater, surface water, and air cleanup levels, Method C may also be used, with certain restrictions, when Method A or B cleanup levels are a) lower than is technically possible, or b) lower than area background, or c) when reaching those levels may result in a greater overall threat to human health and the environment, provided all practicable methods of treatment have been used and institutional controls are in place (WAC 173-340-706).

METHOD C – Frequently Asked Questions

Can I mix Method C with other methods?

You may use Method B cleanup levels when using Method C. You may also use Method A cleanup levels, as discussed above in Method B.

Below are some examples of when it is appropriate to use an industrial Method A soil level (MTCA Table 745-1) at a Method C site.

1. **Arsenic in soil**. The Method A soil arsenic level of 20 mg/kg has been adjusted for natural background[24] and may be used at industrial sites. See the Method B discussion for additional information about natural background concentrations of arsenic in soil.

2. **Lead in soil.** Method C lead soil cleanup levels are not available. The Method A lead soil cleanup level of 1,000 mg/kg is based on protection against human direct contact exposure.

3. **Total PCBs in soil.** The Method A value for total PCBs in soil (10 mg/kg) is based on requirements in TSCA, which is an applicable federal law. Note that the TSCA PCB soil level of 10 mg/kg may not be protective of the soil leaching to groundwater pathway.

[24] Method A statewide natural background levels may not be appropriate for every site. They need to be examined for applicability based on site-specific information such as local soil type and geology and determined in coordination with Ecology's regional offices and site manager.

Therefore, a more stringent PCB level in soil may be required to protect groundwater and/or surface water (e.g., where groundwater discharges to surface water) beneficial uses.

4. **Total Petroleum Hydrocarbons (TPH) in soil.** Method A TPH levels in soil may be used where site-specific Method C TPH levels have not been derived.

Do Method A levels need to account for additive risk and hazard when used under Method C?

Yes. See the discussion under Method B.

This page intentionally left blank.