

**WAC 173-340-355 Development of cleanup action alternatives that include remediation levels.**

(1) Purpose. A cleanup action selected for a site will often involve a combination of cleanup action components, such as treatment of some soil contamination and containment of the remainder. Remediation levels are used to identify the concentrations (or other methods of identification) of hazardous substances at which different cleanup action components will be used. (See the definition of remediation level in WAC 173-340-200.) Remediation levels may be used at sites where a combination of cleanup actions components are used to achieve cleanup levels at the point of compliance (see the examples in subsection (3)(a) and (c) of this section). Remediation levels may also be used at sites where the cleanup action involves the containment of soils as provided under WAC 173-340-740 (6)(f) and at sites conducting interim actions (see the examples in subsection (3)(b) and (d) of this section).

(2) Relationship to cleanup levels and cleanup standards. Remediation levels are not the same as cleanup levels. A cleanup level defines the concentration of hazardous substances above which a contaminated medium (e.g., soil) must be remediated in some manner (e.g., treatment, containment, institutional controls). A remediation level, on the other hand, defines the concentration (or other method of identification) of a hazardous substance in a particular medium above or below which a particular cleanup action component (e.g., soil treatment or containment) will be used. Remediation levels, by definition, exceed cleanup levels.

Cleanup levels must be established for every site. Remediation levels, on the other hand, may not be necessary at a site. Whether remediation levels are necessary depends on the cleanup action selected. For example, remediation levels would not be necessary if the selected cleanup action removes for offsite disposal all soil that exceeds the cleanup level at the applicable points of compliance.

A cleanup action that uses remediation levels must meet each of the minimum requirements specified in WAC 173-340-360, including the requirement that all cleanup actions must comply with cleanup standards. Compliance with cleanup standards requires, in part, that cleanup levels are met at the applicable points of compliance. If the remedial action does not comply with cleanup standards, the remedial action is an interim action, not a cleanup action. Where a cleanup action involves containment of soils with hazardous substance concentrations exceeding cleanup levels at the point of compliance, the cleanup action may be determined to comply with cleanup standards, provided the requirements specified in WAC 173-340-740 (6)(f) are met.

(3) Examples. The following examples of cleanup actions that use remediation levels are for illustrative purposes only. All cleanup action alternatives in a feasibility study, including those with proposed remediation levels, must be evaluated to determine whether they meet each of the minimum requirements specified in WAC 173-340-360 (see WAC 173-340-360 (2)(h)). This evaluation requires, in part, a determination that a more permanent cleanup action is not practicable, based on the disproportionate cost analysis in WAC 173-340-360 (3)(e).

(a) Example of a site meeting soil cleanup levels at the point of compliance. Assume that the soil cleanup level at a site is 20 ppm. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360 and selected for the site consists of soil treatment and removal and a remediation level of 100 ppm to define when those two components are used. Under the cleanup standard, any soil that exceeds the 20 ppm cleanup level at

the applicable point of compliance must be remediated in some manner. Under the selected cleanup action, any soil that exceeds the 100 ppm remediation level must be removed and treated. Any soil that does not exceed the 100 ppm remediation level, but exceeds the 20 ppm cleanup level, must be removed and landfilled. The cleanup action may be determined to comply with the cleanup standard because the cleanup level is met at the applicable point of compliance.

(b) Example of a site not meeting soil cleanup levels at the point of compliance. Assume that the soil cleanup level at a site is 20 ppm. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360 and selected for the site consists of soil treatment and containment and a remediation level of 100 ppm to define when those two components are used. Under the cleanup standard, any soil that exceeds the 20 ppm cleanup level at the applicable point of compliance must be remediated in some manner. Under the selected cleanup action, any soil that exceeds the 100 ppm remediation level must be treated. Any soil that does not exceed the 100 ppm remediation level, but exceeds the 20 ppm cleanup level, must be contained. Residual contamination above the cleanup level will remain at the site. However, assuming the cleanup action meets the requirements specified in WAC 173-340-740 (6)(f) for soil containment actions, the cleanup action may be determined to comply with cleanup standards.

(c) Example of site meeting groundwater cleanup levels at the point of compliance. Assume that the groundwater cleanup level at a site is 500 ug/l and that a conditional point of compliance is established at the property boundary. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360 and selected for the site consists of: Removing the source of the groundwater contamination (e.g., removal of a leaking tank and associated soil contamination above the water table); extracting free product and any groundwater exceeding a concentration of 2,000 ug/l; and utilizing natural attenuation to restore the groundwater to 500 ug/l before it arrives at the property boundary. The groundwater concentration of 2,000 ug/l constitutes a remediation level because it defines the concentration of a hazardous substance at which different cleanup action components are used. As long as the groundwater meets the 500 ug/l cleanup level at the conditional point of compliance (the property boundary), the cleanup action may be determined to comply with cleanup standards.

(d) Example of a site not meeting groundwater cleanup levels at the point of compliance. Assume that the groundwater cleanup level at a site is 5 ug/l and that a conditional point of compliance is established at the property boundary. Further assume that the remedial action selected for the site consists of: Vapor extraction of the soil to nondetectable concentrations (to prevent further groundwater contamination); extraction and treatment of groundwater with concentrations in excess of 100 ug/l; and installation of an air stripping system to treat groundwater at a water supply well beyond the property boundary to less than 5 ug/l. Further assume that the groundwater cleanup level will not be met at the conditional point of compliance (the property boundary). The groundwater concentration of 100 ug/l constitutes a remediation level because it defines the concentration of a hazardous substance at which different cleanup action components are used. However, in this example, the remedial action does not constitute a cleanup action because it does not comply with cleanup standards, one of the minimum requirements for cleanup actions in WAC

173-340-360. Consequently, the remedial action is considered an interim action until the cleanup level is attained at the conditional point of compliance (the property boundary).

(4) General requirements. Potential remediation levels may be developed as part of the cleanup action alternatives to be considered during the feasibility study (see WAC 173-340-350 (8)(c)(i)(D)). These potential remediation levels may be defined as either a concentration or other method of identification of a hazardous substance. Other methods of identification include physical appearance or location (e.g., all of the green sludge will be removed from the northern area of the site). Quantitative or qualitative methods may be used to develop these potential remediation levels. These methods may include a human health risk assessment or an ecological risk assessment. These methods may also consider fate and transport issues. These methods may be simple or complex, as appropriate to the site. Where a quantitative risk assessment is used, see WAC 173-340-357. All cleanup action alternatives in a feasibility study, including those with proposed remediation levels, must still be evaluated to determine whether they meet each of the minimum requirements specified in WAC 173-340-360 (see WAC 173-340-360 (2)(h)).

[Statutory Authority: Chapter 70.105D RCW. WSR 01-05-024 (Order 97-09A), § 173-340-355, filed 2/12/01, effective 8/15/01.]