



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

**MTCA Cleanup Rulemaking**  
**Chapter 173-340 WAC**  
**Adopted Rule**

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*Text with Tracked Changes to Proposed Rule*

August 23, 2023

**Purpose of this document:**

On August 23, 2023, the Department of Ecology (Ecology) adopted amendments to Chapter 173-340 WAC, the Model Toxics Control Act (MTCA) Cleanup Regulations. You can find the adopted rule amendments and supporting documents on Ecology's website: <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-340>.

There are some differences between the proposed rule amendments filed on February 15, 2023, and the adopted rule amendments filed on August 23, 2023. Ecology made these changes for all or some of the following reasons:

- In response to comments received.
- To ensure clarity and consistency.
- To meet the intent of the authorizing statute.

This document identifies all the changes Ecology made to the text of the proposed rule amendments published by the Office of the Code Reviser (OTS-4222.4).

- Except for Part 7 of the rule, this document tracks changes to the proposed rule amendments in the rule text using colored **strikeouts** and **underlines** in Microsoft Word.
- For Part 7 of the rule, this document lists the changes to the rule instead of showing the changes in the rule text. We are displaying the changes to Part 7 in this manner to make it easier for you to identify and compare them. The document lists in separate tables:
  - Differences between the current and adopted rules.
  - Differences between the proposed and adopted rules.

Ecology's reasons for making the changes are summarized in the Concise Explanatory Statement.

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**Accommodation requests:**

To request ADA accommodation including materials in a format for the visually impaired, call Ecology's Toxics Cleanup Program at 360-407-7170. Persons with impaired hearing may call Washington Relay Service at 711. Persons with speech disability may call TTY at 877-833-6341.

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# **Rule Adoption & Document Purpose**

On August 23, 2023, the Department of Ecology (Ecology) adopted amendments to Chapter 173-340 WAC, the Model Toxics Control Act Cleanup Regulations. The regulations govern the investigation and cleanup of sites in Washington state contaminated by the release of hazardous substances. The rule amendments are authorized by and implement Chapter 70A.305 RCW, the Model Toxics Control Act (MTCA), and Chapter 70A.355 RCW, the Underground Storage Tank law.

### **What is the effective date of the amendments?**

The rule amendments become effective on January 1, 2024.

### **What is the purpose of the amendments?**

The purpose of the rule amendments is to:

- Strengthen environmental justice principles when prioritizing and cleaning up contaminated sites.
- Improve the site hazard assessment and ranking process.
- Require comprehensive program plans and performance assessments.
- Improve initial response to releases from regulated underground storage tanks.
- Update and clarify remedial investigation and remedy selection requirements.
- Clarify which requirements apply to independent remedial actions.
- Strengthen public participation and tribal engagement requirements for Ecology-conducted or supervised cleanups.
- Make the rule easier to use and understand.

The rule amendments do not change cleanup standards.

### **Who may be impacted by the amendments?**

The rule amendments may impact persons who:

- Are responsible for investigating and cleaning up contaminated sites.
- Provide services to persons who investigate and clean up contaminated sites.
- Own or operate UST systems regulated under Chapter 173-360A WAC.
- Persons who may be exposed to or impacted by contaminated sites.

### **Where can I find the amendments and supporting documents?**

You can find the adopted rule amendments and supporting documents on Ecology's website:  
<https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-340>.

Available documents include:

- Adoption notice – CR103 form
- Adopted rule language
- Final Regulatory Analyses
- Concise Explanatory Statement
- Implementation Plan
- SEPA Determination of Nonsignificance and Environmental Checklist

### **What is the purpose of this document?**

There are some differences between the proposed rule amendments filed on February 15, 2023, and the adopted rule amendments filed on August 23, 2023. Ecology made these changes for all or some of the following reasons:

- In response to comments received.
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Ecology's reasons for making the changes are summarized in the Concise Explanatory Statement.

### **Where can I find more information about the rulemaking?**

For more information about the rulemaking, visit our website: <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-340>.

If you have any questions about the rulemaking, contact Clint Stanovsky, Rulemaking Lead, at 360-742-9703 or [MTCARule@ecy.wa.gov](mailto:MTCARule@ecy.wa.gov).

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# **Part 1 - Overall Cleanup Process**

**WAC 173-340-100 Purpose.**

This chapter is promulgated under chapter [70A.305](#) RCW, the Model Toxics Control Act. It establishes administrative processes and standards to identify, investigate, and clean up sites where hazardous substances have come to be located. It defines the role of ecology and encourages public and tribal involvement in decision making at these sites.

The goal of this chapter is to implement chapter [70A.305](#) RCW, the Model Toxics Control Act. This chapter provides a workable process to accomplish effective and expeditious cleanups in a manner that protects human health and the environment, including vulnerable populations and overburdened communities. This chapter is primarily intended to address releases of hazardous substances caused by past activities although its provisions may be applied to potential and ongoing releases of hazardous substances from current activities.

Note: All materials incorporated by reference in this chapter are available for inspection at the Department of Ecology's Toxics Cleanup Program, 300 Desmond Drive, Lacey, Washington, 98503.

**WAC 173-340-110 Applicability.**

- (1) This chapter applies to all sites where there has been a release or threatened release of a hazardous substance that may pose a threat to human health or the environment. Under this chapter, ecology may require or take those actions necessary to investigate and clean up these releases.
- (2) Ecology retains all its authority to address a release or threatened release under other applicable laws or regulations. The cleanup process and procedures under this chapter and under other laws may be combined. Ecology may initiate a remedial action under this chapter and may upon further analysis determine that another law is more appropriate, or vice versa.
- (3) If a hazardous substance remains at a site after actions have been completed under other applicable laws or regulations, ecology may apply this chapter to protect human health or the environment.

## **WAC 173-340-120 Overview of cleanup process.**

This section provides an overview of the cleanup process that typically occurs at a site following the discovery of a release or threatened release of a hazardous substance to the environment. See WAC 173-340-510 for an overview of the administrative options for investigating and cleaning up a site. If there are any inconsistencies between this section and any specifically referenced sections, the referenced section governs.

- (1) Release reporting.** Within 90 days of discovering a hazardous substance release or threatened release that may pose a threat to human health or the environment, an owner or operator must report the release to ecology as described in WAC 173-340-300. Other persons are encouraged to report such releases. Some releases are exempt from the release reporting requirements of this chapter, including those previously reported to ecology under the state's hazardous waste, underground storage tank, or water quality laws. The term "hazardous substance" includes a broad range of substances as defined in WAC 173-340-200.
- (2) Initial investigation.** Within 90 days of learning of a hazardous substance release, ecology conducts an initial investigation under WAC 173-340-310 to confirm whether a release occurred that poses a threat and to determine whether further remedial action is necessary to confirm or address that threat. Ecology may extend an initial investigation when independent remedial actions are completed within 90 days of release discovery. Ecology notifies owners and operators in writing of its determination. For sites where remedial action is necessary, ecology also notifies the public in the *Contaminated Site Register* and provides information about the site on ecology's website under WAC 173-340-600.
- (3) Site hazard assessment and ranking.** Based on the results of the initial investigation, ecology assesses and ranks the threats to human health and the environment posed by the site under WAC 173-340-320. Ecology may update the site's hazard assessment and rankings during the cleanup process when new information becomes available or conditions change. Ecology uses the results to support decisions to add or remove sites from the contaminated sites list, prioritize remedial action and funding among and within sites, track cleanup progress, and communicate threats to the public.
- (4) Listing.** Ecology lists a site based on the results of the initial investigation and the site hazard assessment and ranking.
  - (a) Contaminated sites list.** If further remedial action is necessary, ecology adds the site to the contaminated sites list under WAC 173-340-330. The list also identifies the site's remedial action status. Ecology updates the status during the cleanup process to reflect current conditions. The list is publicly available on ecology's website.
  - (b) No further action sites list.** If no further remedial action is necessary, ecology adds the site to the no further action sites list under WAC 173-340-335. The list identifies whether institutional controls or periodic reviews remain necessary at the site. The list is publicly available on ecology's website.
- (5) Interim actions.** Under certain conditions it may be necessary or appropriate to conduct an early, interim action at a site before conducting a cleanup action.

- (a) WAC 173-340-430 describes when interim actions are typically appropriate at a site and the requirements for such actions.
  - (b) WAC 173-340-450 describes specific interim actions that UST system owners and operators must perform immediately or shortly after confirming a release from a regulated UST system to reduce the threats posed by the release, prevent any further release, and characterize the nature and extent of the release. As specified in chapter [173-360A](#) WAC, such releases must be cleaned up in accordance with this chapter.
- (6) **Remedial investigation of site conditions.** After a detailed work plan is prepared, a remedial investigation is conducted at the site under WAC 173-340-350 to identify the sources of contamination; to characterize the nature, extent, and magnitude of contamination; and to assess the threats posed by the contamination to human health and the environment. The results of the remedial investigation are used to establish cleanup standards and to develop and evaluate cleanup action alternatives in a feasibility study.
- (7) **Feasibility study of cleanup action alternatives.** Based on the results of the remedial investigation, cleanup action alternatives for addressing the threats posed by the site are developed and evaluated in a feasibility study under WAC 173-340-351. The alternatives are evaluated against the requirements and expectations for cleanup actions in WAC 173-340-360 and 173-340-370. The results of the feasibility study are used to select the cleanup action for a site. A feasibility study is not required to select an applicable model remedy developed by ecology under WAC 173-340-390.
- (8) **Cleanup action plan.** Based on the results of the remedial investigation/feasibility study, a cleanup action is selected and a cleanup action plan is prepared under WAC 173-340-380. The cleanup action plan documents the selected cleanup action and specifies the cleanup standards and other requirements the cleanup action must meet. Cleanup standards are established under Part 7 of this chapter and include the concentrations the cleanup action must meet (cleanup levels), the location where those concentrations must be met (points of compliance), and other regulatory requirements that apply to the cleanup action or site.
- (9) **Cleanup.** After a cleanup action is selected, the cleanup is conducted under WAC 173-340-400 and 173-340-410. Cleanup includes design, construction, operation and maintenance, and monitoring of the cleanup action.
  - (a) **Design.** Before starting construction, plans are developed to detail the cleanup action. This includes engineering designs, construction plans and specifications, operation and maintenance plans, and compliance monitoring plans. Before or during this design phase, any permits or approvals needed to construct the cleanup action are identified and resolved.
  - (b) **Construction.** Construction of the cleanup action is conducted in accordance with the plans and specifications prepared during the design phase. Upon completion of construction, as-built reports are prepared to document all aspects of construction and compliance with plans and specifications. During and upon completion of construction, ecology may inspect the site and provide construction oversight.

- (c) **Operation and maintenance.** After construction is complete, some cleanup actions need to be operated and maintained for a period of time to achieve cleanup standards. For example, a treatment system may be constructed and used to clean up contaminated groundwater. Operation and maintenance of such cleanup actions is conducted in accordance with a plan developed during the design phase.
- (d) **Monitoring.** During the construction and the operation and maintenance of the cleanup action, the following types of compliance monitoring are conducted. Compliance monitoring is conducted in accordance with a plan developed during the design phase.

  - (i) Protection monitoring is conducted to confirm that human health and the environment are adequately protected.
  - (ii) Performance monitoring is conducted to confirm that the cleanup action is achieving or has attained cleanup standards and any other applicable performance standards, such as remediation levels or permit requirements.
- (10) **Cleanup completion.** Ecology determines whether cleanup of the site is complete based on the criteria in WAC 173-340-330(5). Typically, a cleanup is complete if no further remedial action is necessary to achieve cleanup standards at the site. For nonpermanent cleanup actions, such as those involving containment of contamination, post-cleanup controls and monitoring may be necessary as part of the cleanup action to maintain and periodically review compliance with cleanup standards.
- (11) **Removal from contaminated sites list.** After determining the cleanup of the site is complete, ecology removes the site from the contaminated sites list under WAC 173-340-330 and adds the site to the no further action sites list under WAC 173-340-335. The no further action sites list identifies whether institutional controls or periodic reviews remain necessary at the site.
- (12) **Post-cleanup controls and monitoring.** For nonpermanent cleanup actions, after the cleanup is completed and the site is delisted, one or more of the following post-cleanup remedial actions may be needed to control or monitor contamination remaining at the site.

  - (a) **Engineered controls.** Engineered controls are containment or treatment systems that prevent or limit movement of, or exposure to, contamination. For example, materials may be placed over contaminated soils to limit contact with contamination. For a cleanup action to remain protective, engineered controls must be operated and maintained in accordance with the plan required under WAC 173-340-400.
  - (b) **Institutional controls.** Institutional controls prohibit or limit activities or uses of real property that may interfere with the integrity of engineered controls or result in exposure to contamination remaining at the site. For example, a property may be restricted to industrial land use at sites where cleanup standards are based on such use. Institutional controls may also obligate a person to operate, maintain, or monitor engineered controls to ensure the integrity of the cleanup action. Typically, institutional controls are implemented by recording a restrictive covenant on the property. For a cleanup action to remain protective, institutional controls must be maintained and enforced. See WAC 173-340-440.

- (c) **Confirmation monitoring.** Confirmation monitoring is a type of compliance monitoring used to confirm the long-term effectiveness of a cleanup action after the cleanup is completed. See WAC 173-340-410. For example, confirmation monitoring may be used to confirm that engineered controls are operating properly and effectively limiting the movement of contamination remaining at the site. For a cleanup action to remain protective, confirmation monitoring must be conducted in accordance with the plan required under WAC 173-340-400. Ecology relies on the monitoring data during periodic reviews of post-cleanup site conditions.
  - (d) **Financial assurances.** Financial assurances are assurances made to ecology by a person that sufficient financial resources are available to provide for the long-term operation, maintenance, and monitoring of a cleanup action relying on engineered or institutional controls, and for any needed corrective measures. Ecology may require financial assurances under WAC 173-340-440(11).
  - (e) **Periodic reviews.** Ecology conducts periodic reviews of post-cleanup site conditions at least once every five years to determine whether they remain protective of human health and the environment. If ecology determines that conditions are not protective and that substantial changes to the cleanup action are necessary, ecology may relist the site on the contaminated sites list and revise the cleanup action plan. See WAC 173-340-420.
- (13) **Public notice and participation and tribal engagement.**
- (a) **Site-specific information and alerts.** For all sites on the contaminated sites list and the no further action sites list, ecology will:

    - (i) Make key site information publicly available on ecology’s website under WAC 173-340-600(5), including the site’s listing, remedial action status, hazard rankings, and remedial action plans and reports;
    - (ii) If requested, notify a person electronically under WAC 173-340-600(6) when the site information specified on ecology’s website is added or changed; and
    - (iii) Provide notice of proposed actions available for public comment in the *Contaminated Site Register*.
  - (b) **Ecology-conducted and ecology-supervised remedial actions.** For ecology-conducted and ecology-supervised remedial actions, ecology provides the public with notice and opportunity to comment and invites tribal engagement on most steps in the cleanup process. For such sites, ecology prepares or requires site-specific public participation and tribal engagement plans. These and other requirements are described in WAC 173-340-600(8) through (19) and 173-340-620.
  - (c) **Independent remedial actions.** For independent remedial actions, ecology provides the public with notice of any reports of such actions received by ecology, the results of any ecology review of such actions, the results of any periodic review of the site, and any institutional controls at the site. These and other requirements are described in WAC 173-340-600(20).

**WAC 173-340-130 Administrative principles.**

Ecology will conduct or require remedial actions, or provide technical assistance for independent remedial actions, consistent with the provisions of this section.

- (1) Sharing information.** Ecology's policy is to make information about releases or threatened releases available to owners, operators, or other persons with potential liability for a site in order to encourage them to conduct prompt remedial action. Ecology's policy is also to make the same information available to interested members of the general public so they can follow the progress of site cleanup in the state.
- (2) Providing technical assistance.** All persons are encouraged to contact ecology and seek assistance on the general administrative and technical requirements of the state cleanup law. Under ecology's voluntary cleanup program, persons planning or conducting independent remedial action may also request technical assistance on how to investigate and clean up a site and written opinions on whether a planned or completed remedial action meets the substantive requirements of the state cleanup law. Such technical assistance is advisory only and is not binding on ecology. Such technical assistance does not constitute, and may not be represented by a person as, an approval of a remedial action. See RCW [70A.305.170\(1\)](#) and WAC [173-340-515\(5\)](#). Ecology will only provide a binding commitment or approval under an order or decree.
- (3) Collecting adequate information.** Ecology intends that adequate information be gathered at a site to enable decisions on appropriate actions. Ecology also intends that decisions be made and cleanups proceed expeditiously once adequate information is obtained. Studies can be performed and submittals made at varying levels of detail appropriate to the conditions at the site. Also, steps in the cleanup process may be combined to facilitate quicker cleanups, where appropriate. Flexibility in the scope of investigations and in combining steps may be particularly appropriate for routine cleanup actions. Once adequate information has been obtained, ecology will make decisions within the framework provided under the state cleanup law and in site-specific orders or decrees.
- (4) Preparing documents.** Except for the initial investigation and the site hazard assessment and ranking, any of the studies, reports, or plans used in the cleanup process can be prepared by either ecology or the potentially liable person. Ecology retains all authority to review and verify the documents submitted and to make decisions based on the documents and other relevant information.
- (5) Encouraging and facilitating public participation.** For ecology-conducted and ecology-supervised remedial actions, ecology seeks to encourage public participation and facilitate equitable participation in all steps of the cleanup process under WAC 173-340-600. Ecology will encourage a level of participation appropriate to the threats posed by a site and the level of the public's interest in the site. When assessing public participation needs at a site, ecology will consider the interests of [likely](#) vulnerable populations and overburdened communities.
- (6) Engaging and collaborating with Indian tribes.** For ecology-conducted and ecology-supervised remedial actions, ecology will seek to engage affected Indian tribes under WAC 173-340-620 by providing timely information, effective communication, continuous opportunities for

collaboration and, when necessary, government-to-government consultation, as appropriate for each site.

**(7) Coordinating with agencies.**

- (a)** For ecology-conducted and ecology-supervised remedial actions, ecology will ensure appropriate local, state, and federal agencies are kept informed and, as appropriate, involved in the development and implementation of remedial actions. Ecology may require a potentially liable person to undertake this responsibility. If the potentially liable person demonstrates that they are unable to obtain adequate involvement by a particular government agency to allow the remedial action to proceed, ecology will request the involvement of the agency.
- (b)** The nature and degree of coordination and consultation must be commensurate with the other agencies' interests and needs at the site. Interested agencies must be included in the lists for public notices under WAC 173-340-600. To facilitate coordination, it is important that agencies provide specific comments, including the identification of other applicable state and federal laws and any additional information or mitigating measures that are necessary or desirable to satisfy their concerns.
- (c)** In order to provide for expeditious cleanup actions, all federal, state, and local agencies, are encouraged to coordinate with ecology when providing notices, holding meetings and hearings, and preparing documents. Whenever reasonable, ecology will coordinate and combine its activities with other agencies to minimize the duplication of notices, hearings and preparation of documents, unless otherwise prohibited.

**(8) Integrating State Environmental Policy Act.** See chapter [197-11](#) WAC for the State Environmental Policy Act requirements pertaining to the implementation of the state cleanup law.

**(9) Ecology decisions.** Ecology retains all authority to determine compliance with state cleanup law requirements, including:

- (a)** Whether a remedial action is necessary under state cleanup law;
- (b)** Whether a remedial action meets the requirements in state cleanup law; and
- (c)** Whether a remedial action plan or report meets the requirements in state cleanup law.

**(10) Appealing ecology decisions.** Unless otherwise indicated, all ecology decisions made under this chapter are remedial decisions and may be appealed only as provided for in RCW [70A.305.070](#).



~~WAC 173-340-140~~ — ~~Deadlines.~~

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## **Part 2 – Definitions and Usage**

**WAC 173-340-200 Definitions.**

For the purpose of this chapter, the following definitions apply unless the context clearly requires otherwise:

**“Acute toxicity”** means the ability of a hazardous substance to cause injury or death to an organism as a result of a short-term exposure to a hazardous substance.

**“Agreed order”** means an order issued by ecology under WAC 173-340-530 with which the potentially liable person receiving the order agrees to comply. An agreed order may be used to require or approve any cleanup or other remedial actions, but it is not a settlement under RCW [70A.305.040](#)(4) and does not contain a covenant not to sue, or provide protection from claims for contribution, or provide eligibility for public funding of remedial actions under RCW [70A.305.190](#)(4)(a)(v) and (vi).

**“Aliphatic hydrocarbons” or “aliphatics”** means organic compounds that are characterized by a straight, branched, or cyclic (nonbenzene ring) arrangement of carbon atoms and that do not contain halogens (such as chlorine). See also "aromatic hydrocarbons."

**“All practicable methods of treatment”** means all technologies or methods currently available and demonstrated to work under similar site circumstances or through pilot studies, and applicable to the site at reasonable cost. These include "all known available and reasonable methods of treatment" (AKART) for discharges or potential discharges to waters of the state, and "best available control technologies" (BACT) for releases of hazardous substances into the air resulting from cleanup actions.

**“Applicable state and federal laws”** means all legally applicable requirements specified in WAC 173-340-710(3) and those requirements that ecology determines, based on the criteria in WAC 173-340-710(4), are relevant and appropriate requirements.

**“Area background”** means the concentration of a hazardous substance consistently present in the environment in the vicinity of a site as the result of human activities unrelated to releases from that site. Compare “natural background.”

**“Aromatic hydrocarbons” or “aromatics”** means organic compounds that are characterized by one or more benzene rings, with or without aliphatic hydrocarbon substitutions of hydrogen atoms on the rings, and that do not contain halogens (such as chlorine). See also "aliphatic hydrocarbons."

**“Averaging time”** means the time over which the exposure is averaged. For noncarcinogens, the averaging time typically equals the exposure duration. For carcinogens, the averaging time equals the life expectancy of a person.

**“Bioconcentration factor”** means the ratio of the concentration of a hazardous substance in the tissue of an aquatic organism divided by the hazardous substance concentration in the ambient water in which the organism resides.

**“Carcinogen”** means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen applies to substances on the United States

Environmental Protection Agency lists of A (known human) and B (probable human) carcinogens, and any substance that causes a significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency's Guidelines for Carcinogen Risk Assessment as set forth in 51 FR 33992 et seq.

**“Carcinogenic potency factor” or “CPF”** means the upper 95th percentile confidence limit of the slope of the dose-response curve and is expressed in units of (mg/kg-day)<sup>-1</sup>. When derived from human epidemiological data, the carcinogenic potency factor may be a maximum likelihood estimate.

**“Chronic reference dose”** means an estimate (with an uncertainty spanning an order of magnitude or more) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of adverse effects during a lifetime.

**“Chronic toxicity”** means the ability of a hazardous substance to cause injury or death to an organism resulting from repeated or constant exposure to the hazardous substance over an extended period of time.

**“Cleanup”** means the implementation of a cleanup action or interim action.

**“Cleanup action”** means any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with WAC 173-340-350 through 173-340-390.

**“Cleanup action alternative”** means one or more treatment technology, containment action, removal action, engineered control, institutional control or other type of remedial action (**“cleanup action components”**) that, individually or, in combination, achieves a cleanup action at a site.

**“Cleanup action plan”** means the document prepared under WAC 173-340-380 that documents the selected cleanup action and specifies the cleanup standards and other requirements the cleanup action must meet.

**“Cleanup level”** means the concentration of a hazardous substance in soil, water, air, or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

**“Cleanup standards”** means the standards adopted under RCW [70A.305.030\(2\)\(e\)](#). Establishing cleanup standards requires specification of the following:

- (a) Hazardous substance concentrations that protect human health and the environment (“cleanup levels”);
- (b) The location on the site where those cleanup levels must be attained (“points of compliance”); and
- (c) Additional regulatory requirements that apply to a cleanup action because of the type of action and/or the location of the site. These requirements are specified in applicable state and federal laws and are generally established in conjunction with the selection of a specific cleanup action.

**“Cohen's method”** means the maximum likelihood estimate of the mean and standard deviation accounting for data below the method detection limit or practical quantitation limit using the method described in the following publications:

- (a) Cohen, A.C., 1959. "Simplified estimators for the normal distribution when samples are singly censored or truncated." *Technometrics*. Volume 1, pages 217-237.
- (b) Cohen, A.C., 1961. "Tables for maximum likelihood estimates: Singly truncated and singly censored samples." *Technometrics*. Volume 3, pages 535-541.

**“Compliance monitoring”** means a remedial action that consists of the monitoring described in WAC [173-340-410, including protection monitoring, performance monitoring, and confirmation monitoring](#).

**“Conceptual site model”** means a conceptual understanding of a site that identifies known or suspected:

- (a) Hazardous substance sources and release mechanisms;
- (b) Hazardous substance types and concentrations;
- (c) Hazardous substance transport, including preferential pathways;
- (d) Contaminated environmental media, including the general extent and distribution of contamination within the media;
- (e) Current and potential human and ecological receptors and exposure pathways (complete and incomplete); and
- (f) Physical and habitat features, including current and potential future land and water uses [and any sensitive environments](#).

This model is typically developed during the scoping of a remedial investigation and further refined as additional information is collected about the site during the remedial investigation. The model is a tool used to assist in making decisions at a site.

**“Conducting land use planning under chapter [36.70A RCW](#),”** as used in the definition of "industrial properties," means having adopted a comprehensive plan and development regulations for the site under chapter [36.70A RCW](#) (Growth Management Act).

**“Confirmation monitoring”** means a type of compliance monitoring described in WAC 173-340-410.

**“Containment”** means a container, vessel, barrier, or structure, whether natural or constructed, that confines a hazardous substance within a defined boundary and prevents or minimizes its release into the environment.

**“Contaminant”** means any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

**“Contaminated site”** means a site for which ecology or PLIA has determined further remedial action is necessary under the state cleanup law to:

- (a) Confirm whether there is a threat to human health or the environment posed by a release or threatened release; or
- (b) Address the threat posed by a release or threatened release, based on the criteria in WAC 173-340-330(5).

A contaminated site is referred to as hazardous waste site in chapter [70A.305](#) RCW.

**“Contaminated sites list”** means a list of contaminated sites maintained by ecology under WAC 173-340-330. For each listed site, the list also identifies the site’s current remedial action status. This list is referred to as the hazardous sites list in chapter [70A.305](#) RCW.

**“Curie”** means the measure of radioactivity defined as that quantity of radioactive material which decays at the rate of  $3.70 \times 10^{10}$  transformations per second. This decay rate is nearly equivalent to that exhibited by 1 gram of radium in equilibrium with its disintegration products.

**“Day”** means calendar day; however, any document due on the weekend or a holiday may be submitted on the first working day after the weekend or holiday.

**“Decree”** means a consent decree issued under WAC [173-340-520](#). "Consent decree" is synonymous with decree.

**“Degradation by-products” or “decomposition by-products”** means the secondary product of biological or chemical processes that break down chemicals into other chemicals. The decomposition by-products may be more or less toxic than the parent compound.

**“Developmental reference dose”** means an estimate (with an uncertainty of an order of magnitude or more) of an exposure level for the human population, including sensitive subgroups, that is likely to be without an appreciable risk of developmental effects.

**“Direct contact”** means exposure to hazardous substances through ingestion and/or dermal contact.

**“Director”** means the director of the department of ecology or the director's designee.

**“Disposal”** means the discharging, discarding, or abandoning of hazardous substances or the treatment, decontamination, or recycling of such substances once they have been discarded or abandoned. This includes the discharge, discard, or abandonment of any hazardous substances into or on any land, air, or water.

**“Drinking water fraction”** means the fraction of drinking water that is obtained or has the potential to be obtained from the site.

**“Ecology” or “department”** means the department of ecology.

**“Ecology-conducted remedial action”** means a remedial action conducted by ecology.

**“Ecology-supervised remedial action”** means a remedial action conducted by a potentially liable person or prospective purchaser and supervised by ecology under an order or decree.

**“Engineered control”** means a containment or treatment system that is designed and constructed to prevent or limit the movement of, or the exposure to, a hazardous substance. An engineered control is a type of remedial action. Examples of engineered controls include:

- (a) A layer of clean soil, asphalt or concrete paving, or other materials placed over contaminated soils to limit contact with contamination;
- (b) A groundwater flow barrier such as a bentonite slurry trench;
- (c) A groundwater gradient control system such as a French drain or a pump and treat system; and
- (d) A vapor control system.

**“Environment”** means any plant, animal, natural resource, surface water (including underlying sediments), groundwater, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington or under the jurisdiction of the state of Washington.

**“Equivalent carbon number” or “EC”** means a value assigned to a fraction of a petroleum mixture, empirically derived from the boiling point of the fraction normalized to the boiling point of n-alkanes or the retention time of n-alkanes in a boiling point gas chromatography column.

**“Exposure”** means subjection of an organism to the action, influence, or effect of a hazardous substance (chemical agent) or physical agent.

**“Exposure duration”** means the period of exposure to a hazardous substance.

**“Exposure frequency”** means the portion of the exposure duration that an individual is exposed to a hazardous substance, expressed as a fraction. For example, if a person is exposed 250 days (five days per week for 50 work weeks) over a year (365 days), the exposure frequency would be equal to:  $(5 \times 50)/365 = 0.7$ .

**“Exposure parameters”** means those parameters used to derive an estimate of the exposure to a hazardous substance.

**“Exposure pathway”** means the path a hazardous substance takes or could take from a source to an exposed organism. An exposure pathway describes the mechanism by which an individual or population is exposed or has the potential to be exposed to hazardous substances at or originating from a site. Each exposure pathway includes an actual or potential source or release from a source, an exposure point, and an exposure route. If the exposure point differs from the source of the hazardous substance, the exposure pathway also includes a transport/exposure medium.

**“Facility”** means (a) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft, or (b) any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.



**“Feasibility study”** means a remedial action conducted under WAC 173-340-351 that consists of developing and evaluating cleanup action alternatives to enable selection of a cleanup action.

**“Federal cleanup law”** means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ([42 U.S.C. 9601 et seq.](#)).

**“Financial assurance”** means a remedial action that consists of an assurance provided to ecology under WAC 173-340-440(11) that sufficient financial resources are available to provide for the long-term effectiveness of engineered or institutional controls.

**“Fish diet fraction”** means the percentage of the total fish and/or shellfish in an individual's diet that is obtained or has the potential to be obtained from the site.

**“Food crop”** means any domestic plant that is produced for the purpose of, or may be used in whole or in part for, consumption by people or livestock. This includes nursery, root, or seedstock to be used for the production of food crops.

**“Free product”** means a nonaqueous phase liquid that is present in the soil, bedrock, groundwater or surface water as a distinct separate layer. Under the right conditions, if sufficient free product is present, free product is capable of migrating independent of the direction of flow of the groundwater or surface water.

**“Gastrointestinal absorption fraction”** means the fraction of a substance transported across the gastrointestinal lining and taken up systemically into the body.

**“Groundwater”** means water in a saturated zone or stratum beneath the surface of land or below a surface water.

**“Hazard index”** means the sum of two or more hazard quotients for multiple hazardous substances and/or multiple exposure pathways.

**“Hazardous substance”** means:

- (a) Any dangerous or extremely hazardous waste as defined in RCW [70A.300.010](#)(1) and (7), or any dangerous or extremely dangerous waste as designated by rule under chapter [70A.300](#) RCW;
- (b) Any hazardous substance as defined in RCW [70A.300.010](#)(10) or any hazardous substance as defined by rule under chapter [70A.300](#) RCW;
- (c) Any substance that, on the effective date of this section, is a hazardous substance under section 101(14) of the federal cleanup law, [42 U.S.C. Sec. 9601\(14\)](#);
- (d) Petroleum or petroleum products; and
- (e) Any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment.

The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: Crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

**“Hazard quotient” or “HQ”** means the ratio of the dose of a single hazardous substance over a specified time period to a reference dose for that hazardous substance derived for a similar exposure period.

**“Health and safety plan”** means a plan prepared under WAC [173-340-810](#).

**“Health effects assessment summary tables” or “HEAST”** means a database developed by the United States Environmental Protection Agency that provides a summary of information on the toxicity of hazardous substances.

**“Henry's law constant”** means the ratio of a hazardous substance's concentration in the air to its concentration in water. Henry's law constant can vary significantly with temperature for some hazardous substances. The dimensionless form of this constant is used in the default equations in this chapter.

**“Highest beneficial use”** means the beneficial use of a resource generally requiring the highest quality in the resource. For example, for many hazardous substances, providing protection for the beneficial use of drinking water will generally also provide protection for a great variety of other existing and future beneficial uses of groundwater.

**“Inadvertent discovery plan”** means a plan prepared under WAC 173-340-815 that describes procedures for responding to a discovery of archaeological materials or human remains in accordance with applicable state and federal laws.

**“Independent remedial action”** means a remedial action conducted without ecology oversight or approval and not under an order or decree.

**“Indian tribe”** means the term as defined in RCW [43.376.010](#)(1).

**“Indicator hazardous substances”** means the subset of hazardous substances present at a site selected under WAC 173-340-708 for monitoring and analysis during any phase of remedial action for the purpose of characterizing the site or establishing cleanup requirements for that site.

**“Indigenous peoples”** means individual members of Indian tribes; other individual Native Americans; individual Native Alaskans, Native Hawaiians, and Native Pacific Islanders; and indigenous and tribal community-based organizations.

**“Industrial properties”** means properties that are or have been characterized by, or are to be committed to, traditional industrial uses such as processing or manufacturing of materials, marine terminal and transportation areas and facilities, fabrication, assembly, treatment, or distribution of manufactured products, or storage of bulk materials, that are either:

- (a) Zoned for industrial use by a city or county conducting land use planning under chapter [36.70A](#) RCW (Growth Management Act); or

- (b) For counties not planning under chapter [36.70A](#) RCW (Growth Management Act) and the cities within them, zoned for industrial use and adjacent to properties currently used or designated for industrial purposes.

See WAC 173-340-745 for additional criteria to determine if a land use not specifically listed in this definition would meet the requirement of "traditional industrial use" and for evaluating if a land use zoning category meets the requirement of being "zoned for industrial use."

**"Inhalation absorption fraction"** means the percent of a hazardous substance (expressed as a fraction) that is absorbed through the respiratory system.

**"Inhalation correction factor"** means a multiplier that is used to adjust exposure estimates based on ingestion of drinking water to take into account exposure to hazardous substances that are volatilized and inhaled during use of the water.

**"Initial investigation"** means a remedial action that consists of an investigation conducted under WAC 173-340-310.

**"Institutional control"** means a measure undertaken to limit or prohibit activities that may interfere with the integrity of an interim action or a cleanup action or result in exposure to hazardous substances at the site. An institutional control is a type of remedial action. For examples of institutional controls, see WAC 173-340-440(1).

**"Integrated risk information system" or "IRIS"** means a database developed by the United States Environmental Protection Agency that provides a summary of information on hazard identification and dose-response assessment for specific hazardous substances.

**"Interim action"** means a remedial action conducted under WAC 173-340-430.

**"Interspecies scaling factor"** means the conversion factor used to take into account differences between animals and humans.

**"Land's method"** means the method for calculating an upper confidence limit for the mean of a lognormal distribution, described in the following publications:

- (a) Land, C.E., 1971. "Confidence intervals for linear functions of the normal mean and variance." *Annals of Mathematics and Statistics*. Volume 42, pages 1187-1205.
- (b) Land, C.E., 1975. "Tables of confidence limits for linear functions of the normal mean and variance." In: *Selected Tables in Mathematical Statistics*, Volume III, pages 385-419. American Mathematical Society, Providence, Rhode Island.

**"Legally applicable requirements"** means those cleanup standards, standards of control, and other human health and environmental protection requirements, criteria, or limitations adopted under state or federal law that specifically address a hazardous substance, cleanup action, location, or other circumstances at the site.

**"Lowest observed adverse effect level" or "LOAEL"** means the lowest concentration of a hazardous substance at which there is a statistically or biologically significant increase in the frequency or severity of an adverse effect between an exposed population and a control group.

**“Maximum contaminant level”** or **“MCL”** means the maximum concentration of a contaminant established by either the Washington state board of health or the United States Environmental Protection Agency under the Safe Drinking Water Act (42 U.S.C. 300f et seq.) and published in chapter [246-290](#) WAC or 40 C.F.R. Part 141.

**“Maximum contaminant level goal”** or **“MCLG”** means the maximum concentration of a contaminant established by either the Washington state board of health or the United States Environmental Protection Agency under the Safe Drinking Water Act (42 U.S.C. 300f et seq.) and published in chapter [246-290](#) WAC or 40 C.F.R. Part 141 for which no known or anticipated adverse effects on human health occur, including an adequate margin of safety.

**“Method detection limit”** or **“MDL”** means the minimum concentration of a compound that can be measured and reported with 99 percent confidence that the value is greater than zero.

**“Millirem”** or **“mrem”** means the measure of the dose of any radiation to body tissue in terms of its estimated biological effect relative to a dose received from an exposure to one roentgen (R) of X-rays. One millirem equals 0.001 rem.

**“Mixed funding”** means any funding provided to a potentially liable person from the model toxics control capital account under WAC 173-340-560.

**“Model remedy”** means a set of technologies, procedures, and monitoring protocols identified by ecology for use in routine types of cleanup projects at facilities that have common features and lower risk to human health and the environment.

**“Model Toxics Control Act”** or **“act”** means chapter [70A.305](#) RCW, first passed by the voters in the November 1988 general election as Initiative 97 and as since amended by the legislature.

**“National priorities list”** or **“NPL”** means the list of sites designated as a national priority by the United States Environmental Protection Agency under Section 105(a)(8)(B) of the federal cleanup law, [42 U.S.C. 9605\(a\)\(8\)\(B\)](#).

**“Natural attenuation”** means a variety of physical, chemical or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of hazardous substances in the environment. These in situ processes include: Natural biodegradation; dispersion; dilution; sorption; volatilization; and chemical or biological stabilization, transformation, or destruction of hazardous substances. See WAC 173-340-370(7) for a description of the expected role of natural attenuation in site cleanup. A cleanup action that includes natural attenuation and conforms to the expectation in WAC 173-340-370(7) can be considered an active remedial measure.

**“Natural background”** means the concentration of a hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediments, and soils of Washington state due solely to the geologic processes that formed these materials. The concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution

of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background. Compare “area background.”

**“Natural biodegradation”** means in situ biological processes such as aerobic respiration, anaerobic respiration, and cometabolism, that occur without human intervention and that break down hazardous substances into other compounds or elements. The process is typically a multiple step process and may or may not result in organic compounds being completely broken down or mineralized to carbon dioxide and water.

**“Natural person”** means any unincorporated individual or group of individuals. The term "individual" is synonymous with "natural person."

**“Nonaqueous phase liquid”** or **“NAPL”** means a hazardous substance that is present in the soil, bedrock, groundwater, or surface water as a liquid not dissolved in water. The term includes both light nonaqueous phase liquid (LNAPL) and dense nonaqueous phase liquid (DNAPL).

**“No further action sites list”** means a list of sites for which ecology or PLIA has determined no further remedial action is necessary under state cleanup law to meet the criteria in WAC 173-340-330(5). For each listed site, the list also identifies whether institutional controls or periodic reviews remain necessary at the site. Ecology maintains the list under WAC 173-340-335.

**“No observed adverse effect level”** or **“NOAEL”** means the exposure level at which there are no statistically or biologically significant increases in frequency or severity of adverse effects between the exposed population and its appropriate control. Some effects may be produced at this level, but they are not considered to be adverse, nor precursors to specific adverse effects.

**“Nonpotable”** means not a current or potential source of drinking water. See WAC 173-340-720 and 173-340-730 for criteria for determining if groundwater or surface water is a current or potential source of drinking water.

**“Null hypothesis”** means an assumption about hazardous substance concentrations at a site when evaluating compliance with cleanup levels established under this chapter. The null hypothesis is that the site is contaminated at concentrations that exceed cleanup levels. This does not apply to cleanup levels based on background concentrations where other appropriate statistical methods supported by a power analysis would be more appropriate to use.

**“Oral RFD conversion factor”** means the conversion factor used to adjust an oral reference dose (which is typically based on an administered dose) to a dermal reference dose (which is based on an absorbed dose).

**“Order”** means an enforcement order issued under WAC 173-340-540 or an agreed order issued under WAC 173-340-530.

**“Overburdened community”** means the term as defined in RCW [70A.02.010](#)(11).

**“Owner or operator”** means any person that meets the definition of this term in RCW [70A.305.020](#)(22).

**“PAHs (carcinogenic)” or “cPAHs”** means those polycyclic aromatic hydrocarbons substances, PAHs, identified as A (known human) or B (probable human) carcinogens by the United States Environmental Protection Agency. These include benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

**“Performance monitoring”** means a type of compliance monitoring described in WAC 173-340-410.

**“Periodic review”** means a remedial action that consists of a review conducted by ecology under WAC 173-340-420.

**“Permanent solution” or “permanent cleanup action”** means a cleanup action in which cleanup standards of Part 7 of this chapter can be met without further action being required at the site being cleaned up or any other site involved with the cleanup action, other than the approved disposal of any residue from the treatment of hazardous substances.

**“Person”** means an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, state government agency, unit of local government, federal government agency, or Indian tribe.

**“Picocurie” or “pCi”** means  $10^{-12}$  curie.

**“PLIA”** means the pollution liability insurance agency.

**“Point of compliance”** means the point or points where cleanup levels established in accordance with WAC 173-340-720 through 173-340-760 must be attained. This term includes both standard and conditional points of compliance. A conditional point of compliance for particular environmental media is only available as provided in WAC 173-340-720 through 173-340-760.

**“Polychlorinated biphenyls” or “PCB mixtures”** means those aromatic compounds containing two benzene nuclei with two or more substituted chlorine atoms. For the purposes of this chapter, PCB includes those congeners which are identified using the appropriate analytical methods specified by ecology under WAC 173-340-830.

**“Polycyclic aromatic hydrocarbons” or “PAH”** means those hydrocarbon molecules composed of two or more fused benzene rings. For the purpose of this chapter, PAH includes those compounds which are identified and quantified using the appropriate analytical methods specified by ecology under WAC 173-340-830. The specific compounds generally included are acenaphthene, acenaphthylene, fluorene, naphthalene, anthracene, fluoranthene, phenanthrene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, pyrene, chrysene, benzo[a]pyrene, dibenzo[a,h]anthracene, indeno[1,2,3-cd]pyrene, and benzo[ghi]perylene.

**“Potentially liable person”** means any person who ecology finds, based on credible evidence, to be liable under RCW [70A.305.040](#).

**“Practicable”** means capable of being designed, constructed, and implemented in a reliable and effective manner including consideration of cost. An alternative is not practicable if its incremental costs are disproportionate to its incremental degree of benefits, compared to

another alternative. Whether a cleanup action uses permanent solutions to the maximum extent practicable is determined using the procedures in WAC 173-340-360~~(6)~~(5).

**“Practical quantitation limit”** or **“PQL”** means the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using ecology approved methods.

**“Probabilistic risk assessment”** means a mathematical technique for assessing the variability and uncertainty in risk calculations. This is done by using distributions for model input parameters, rather than point values, where sufficient data exists to justify the distribution. These distributions are then used to compute various simulations using tools such as Monte Carlo analysis to examine the probability that a given outcome will result (such as a level of risk being exceeded). When using probabilistic techniques under this chapter for human health risk assessment, distributions may not be used to represent dose response relationships (reference dose, reference concentration, cancer potency factor).

**“Prospective purchaser”** means a person who is not currently liable for remedial action at a site and who proposes to purchase, redevelop, or reuse the site.

**“Protection monitoring”** means a type of compliance monitoring described in WAC 173-340-410.

**“Public notice”** means the notice and opportunity to comment required under WAC 173-340-600(2).

**“Public participation plan”** means a plan prepared under WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

**“Rad”** means that quantity of ionizing radiation that results in the absorption of 100 ergs of energy per gram of irradiated material, regardless of the source of radiation.

**“Radionuclide”** means a type of atom that spontaneously undergoes radioactive decay. Radionuclides are hazardous substances under the act.

**“Reasonable maximum exposure”** means the highest exposure that can be reasonably expected to occur for a human or other living organisms, including a [likely](#) vulnerable population or ~~an~~ overburdened community, at a site under current and potential future site use.

**“Reference dose”** or **“RFD”** means a benchmark dose, derived from the NOAEL or LOAEL for a hazardous substance by consistent application of uncertainty factors used to estimate acceptable daily intake doses and an additional modifying factor, which is based on professional judgment when considering all available data about a substance, expressed in units of milligrams per kilogram body weight per day. This includes chronic reference doses, subchronic reference doses, and developmental reference doses.

**“Regulated substance”** means the term as defined in chapter [173-360A](#) WAC. All regulated substances are hazardous substances, as defined in this chapter.

**“Release”** means any intentional or unintentional entry of any hazardous substance into the environment, including but not limited to the abandonment or disposal of containers of hazardous substances.



**“Relevant and appropriate requirements”** means those cleanup standards, standards of control, and other human health and environmental requirements, criteria, or limitations established under state and federal law that, while not legally applicable to the hazardous substance, cleanup action, location, or other circumstance at a site, ecology determines address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site. The criteria specified in WAC 173-340-710(4) are used to determine if a requirement is relevant and appropriate.

**“Rem”** means the unit of radiation dose equivalent that is the dosage in rads multiplied by a factor representing the different biological effects of various types of radiation.

**“Remedial investigation”** means a remedial action conducted under WAC 173-340-350 that consists of collecting and evaluating sufficient information about a site, including the distribution of hazardous substances and the threat they pose to human health and the environment, to enable:

- (a) Cleanup standards to be established under Part 7 of this chapter; and
- (b) Cleanup action alternatives to be developed and evaluated in a feasibility study under WAC 173-340-351.

**“Remedial investigation/feasibility study”** means a remedial action that consists of both a remedial investigation and a feasibility study.

**“Remediation level (REL)”** means a concentration (or other method of identification) of a hazardous substance in soil, water, air, or sediment used to identify where a particular cleanup action component is required as part of a cleanup action at a site. Other methods of identification include physical appearance or location. A cleanup action selected in accordance with WAC 173-340-350 through 173-340-390 that includes remediation levels constitutes a cleanup action which is protective of human health and the environment. See WAC 173-340-355 for a description of the purpose of remediation levels and the requirements and procedures for developing a cleanup action alternative that includes remediation levels.

**“Remedy”** or **“remedial action”** means any action or expenditure consistent with the purposes of chapter [70A.305](#) RCW to identify, eliminate, or minimize any threat posed by hazardous substances to human health or the environment including any investigative and monitoring activities with respect to any release or threatened release of a hazardous substance and any health assessments or health effects studies conducted in order to determine the risk or potential risk to human health.

**“Restoration time frame”** means the period of time needed to achieve the required cleanup levels at the points of compliance established for the site.

**“Risk”** means the probability that a hazardous substance, when released into the environment, will cause an adverse effect in exposed humans or other living organisms.

**“Routine cleanup action”** means a remedial action meeting all of the following criteria:



- Cleanup standards for each hazardous substance addressed by the cleanup are obvious and undisputed, and allow for an adequate margin of safety for protection of human health and the environment;
- It involves an obvious and limited choice among cleanup action alternatives and uses an alternative that is reliable, has proven capable of accomplishing cleanup standards, and with which ecology has experience;
- The cleanup action does not require preparation of an environmental impact statement; and
- The site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or if the site qualifies for a simplified ecological evaluation, the evaluation is ended under WAC 173-340-7492(2) or the values in Table 749-2 are used.

Routine cleanup actions consist of, or are comparable to, one or more of the following remedial actions:

- Cleanup of above-ground structures;
- Cleanup of below-ground structures;
- Cleanup of contaminated soils where the action would restore the site to cleanup levels; or
- Cleanup of solid wastes, including containers.

**“Sampling and analysis plan”** means a plan prepared under WAC 173-340-820.

**“Saturated zone”** means the area below the water table in which all interstices are filled with water.

**“Schools”** means preschools, elementary schools, middle schools, high schools, and similar facilities, both public and private, used primarily for the instruction of minors.

**“Sediment”** means the term as defined in WAC [173-204-505](#).

**“Sensitive environment”** means an area of particular environmental value, where a release could pose a greater threat than in other areas including: Wetlands; critical habitat for endangered or threatened species; national or state wildlife refuge; critical habitat, breeding or feeding area for fish or shellfish; wild or scenic river; rookery; riparian area; big game winter range.

**“Site”** means the same as "facility."

**“Site hazard assessment and ranking”** means a remedial action that consists of an assessment and ranking conducted under WAC 173-340-320.

**“Soil”** means a mixture of organic and inorganic solids, air, water, and biota that exists on the earth's surface above bedrock, including materials of anthropogenic sources such as slag, sludge, etc.

**“Soil biota”** means invertebrate multicellular animals that live in the soil or in close contact with the soil.

**“State cleanup law”** means the Model Toxics Control Act, chapter [70A.305](#) RCW, and the cleanup regulations adopted under that Act, chapters [173-340](#) and [173-204](#) WAC.

**“Subchronic reference dose”** means an estimate (with an uncertainty of an order of magnitude or more) of a daily exposure level for the human population, including sensitive subgroups, that is likely to be without appreciable risk of adverse effects during a portion of a lifetime.

**“Surface water”** means lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the state of Washington or under the jurisdiction of the state of Washington.

**“Technically possible”** means capable of being designed, constructed, and implemented in a reliable and effective manner, regardless of cost.

**“Terrestrial ecological receptors”** means plants and animals that live primarily or entirely on land.

**“Threatened or endangered species”** means species listed as threatened or endangered under the federal Endangered Species Act 16 U.S.C. Section 1533, or classified as threatened or endangered by the state fish and wildlife commission under WAC [220-200-100](#) or [220-610-010](#).

**“Total excess cancer risk”** means the upper bound on the estimated excess cancer risk associated with exposure to multiple hazardous substances and multiple exposure pathways.

**“Total petroleum hydrocarbons”** or **“TPH”** means any fraction of crude oil that is contained in plant condensate, crankcase motor oil, gasoline, aviation fuels, kerosene, diesel motor fuel, benzol, fuel oil, and other products derived from the refining of crude oil. For the purposes of this chapter, TPH generally means those fractions of the above products that are the total of all hydrocarbons quantified by analytical methods NWTPH-Gx; NWTPH-Dx; volatile petroleum hydrocarbons (VPH) for volatile aliphatic and volatile aromatic petroleum fractions; and extractable petroleum hydrocarbons (EPH) for nonvolatile aliphatic and nonvolatile aromatic petroleum fractions, as appropriate, or other test methods approved by ecology.

**“Type I error”** means the error made when it is concluded that an area of a site is below cleanup levels when it actually exceeds cleanup levels. This is the rejection of a true null hypothesis.

**“Underground storage tank”** or **“UST”** means the term as defined in chapter [173-360A](#) WAC.

**“Unrestricted site use conditions”** means restrictions on the use of the site or natural resources affected by releases of hazardous substances from the site are not required to ensure continued protection of human health and the environment.

**“Upper bound on the estimated excess cancer risk of one in 100,000”** means the upper 95th percent confidence limit on the estimated risk of one additional cancer above the background cancer rate per 100,000 individuals.

**“Upper bound on the estimated excess cancer risk of one in 1,000,000”** means the upper 95th percent confidence limit on the estimated risk of one additional cancer above the background cancer rate per 1,000,000 individuals.

**“UST system”** means the term as defined in chapter [173-360A](#) WAC.

**“UST system operator”** means the same as “operator” in chapter [173-360A](#) WAC.

**“UST system owner”** means the same as “owner” in chapter [173-360A](#) WAC.

**“Volatile organic compound”** means those carbon-based compounds listed in United States Environmental Protection Agency methods 502.2, 524.2, 551, 601, 602, 603, 624, 1624C, 1666, 1671, 8011, 8015B, 8021B, 8031, 8032A, 8033, 8260B, and those with similar vapor pressures or boiling points. For petroleum, volatile means aliphatic and aromatic constituents up to and including EC12, plus naphthalene, 1-methylnaphthalene and 2-methylnaphthalene.

**“Vulnerable population”** means the term as defined in RCW [70A.02.010](#)(14).

**“Wastewater facility”** means all structures and equipment required to collect, transport, treat, reclaim, or dispose of domestic, industrial, or combined domestic/industrial wastewaters.

**“Wetlands”** means the term as defined in WAC [173-201A-020](#).

**“Wildlife”** means any nonhuman vertebrate animal other than fish.

**“Zoned for (a specified) use”** means the use is allowed as a permitted or conditional use under the local jurisdiction's land use zoning ordinances. A land use that is inconsistent with the current zoning but allowed to continue as a nonconforming use or through a comparable designation is not considered to be zoned for that use.

**WAC 173-340-210 Usage.**

For the purposes of this chapter, the following apply:

- (1) Unless the context clearly requires otherwise, the use of the singular includes the plural and conversely.
- (2) The terms **“applicable,” “appropriate,” “relevant,” “unless otherwise directed by ecology” and similar terms implying discretion** mean as determined by ecology, with the burden of proof on other persons to demonstrate that the requirements are or are not necessary.
- (3) **“Approved”** means for ecology-conducted or ecology-supervised remedial actions.
- (4) **“Conduct”** means to perform or undertake whether directly or through an agent or contractor, unless this chapter expressly provides otherwise.
- (5) **“Include”** means included, but not limited to.
- (6) **“May”** or **“should”** means the provision is optional and permissive, and does not impose a requirement.
- (7) **“Shall,” “must,”** or **“will”** means the provision is mandatory.
- (8) **“Threat”** means threat or potential threat.
- (9) **“Under”** means pursuant to, subject to, required by, established by, in accordance with, and similar expressions of legislative or administrative authorization or direction.

## **Part 3 – Site Reports and Cleanup Decisions**

**WAC 173-340-300 Site discovery and reporting.**

- (1) **Purpose.** This section sets forth the requirements for reporting a release or threatened release of a hazardous substance to the environment that may pose a threat to human health or the environment.
- (2) **Applicability and timing.** Except as provided under (a) of this subsection, within 90 days of discovering a release or threatened release of a hazardous substance to the environment that may pose a threat to human health or the environment, an owner or operator must report the release to ecology. All other persons are encouraged to report such a release to ecology.
- (a) **Exemptions.** An owner or operator does not need to report the following releases under this section:
- (i) A release previously reported to ecology in fulfillment of a reporting requirement in this chapter or in another law or regulation, including a release previously reported to ecology under chapter [173-360A](#) WAC;
  - (ii) A release from a heating oil tank previously reported to PLIA under WAC [374-45-030](#);
  - (iii) A release previously reported to the United States Environmental Protection Agency under CERCLA, Section 103(c) (42 U.S.C. Sec. 9603(c));
  - (iv) A release previously reported to the state division of emergency management under RCW [90.56.280](#);
  - (v) Application of pesticides and fertilizers for their intended purposes and according to label instructions;
  - (vi) Lawful and nonnegligent use of hazardous substances by a natural person for personal or domestic purposes;
  - (vii) A release in accordance with a permit that authorizes the release;
  - (viii) Except for a release specified under (b)(iii) of this subsection, a release to the air;
  - (ix) A release discovered in a public water system regulated by the department of health; or
  - (x) A release to a permitted wastewater facility.

An exemption from the reporting requirements in this section does not imply a release from liability under the state cleanup law.

- (b) **Examples.** An owner or operator should use best professional judgment in deciding whether a release or threatened release of a hazardous substance to the environment may pose a threat to human health or the environment. The following, which is not an exhaustive list, are examples of situations that an owner or operator should generally report under this section:

- (i) Contamination in a water supply well;
  - (ii) Contaminated seeps, sediment or surface water;
  - (iii) Vapors in a building, utility vault or other structure that appear to be entering the structure from nearby contaminated soil or ground water;
  - (iv) Non-aqueous phase liquid, such as a petroleum product or chlorinated solvent, on the surface of the ground or in the groundwater (free product);
  - (v) Any contaminated soil or unpermitted disposal of waste materials that would be classified as a hazardous waste under federal or state law;
  - (vi) Any abandoned containers such as drums or tanks, above ground or buried, still containing more than trace residuals of hazardous substances;
  - (vii) Sites where unpermitted industrial waste disposal has occurred;
  - (viii) Sites where hazardous substances have leaked or been dumped on the ground; and
  - (ix) Leaking underground petroleum storage tanks not already reported under chapter [173-360A](#) WAC.
- (3) **Content of release report.** An owner or operator must include the following information in a release report, to the extent known:
- (a) The identity and location of the hazardous substance;
  - (b) The circumstances of the hazardous substance release and its discovery; and
  - (c) Any planned, ongoing, or completed independent remedial actions to investigate or clean up the release.
    - (i) See WAC 173-340-515(4) and 173-340-450 for additional reporting requirements for independent remedial actions.
    - (ii) See WAC 173-340-310(5) for ecology's authority to defer completing an initial investigation of a release to review independent remedial actions completed within 90 days of release discovery.
- (4) **Other release reporting requirements.** Nothing in this section eliminates any obligations to comply with reporting requirements in other laws or permits including, but not limited to, the following:
- (a) **Releases from regulated UST systems.** Under chapter [173-360A](#) WAC, UST system owners and operators and regulated service providers must report a confirmed release of a regulated substance from an UST system to ecology within 24 hours. As specified in subsection (2)(a)(i) of this section, a release previously reported to ecology under chapter [173-360A](#) WAC is exempt from the release reporting requirements in this section; however, the release must still be investigated and cleaned up in accordance

with the state cleanup law. WAC 173-340-450 specifies interim actions that UST system owners and operators must perform immediately or shortly after confirming a release to reduce the threats posed by the release, prevent any further release, and characterize the nature and extent of the release;

- (b) Releases from heating oil tanks.** Under chapter [374-45](#) WAC, owners and operators of a heating oil tank and owners of the property where the tank is located must report a suspected or confirmed release from the tank to PLIA within 90 days. As specified in subsection (2)(a)(ii) of this section, a release previously reported to ecology under chapter [374-45](#) WAC is exempt from the release reporting requirements in this section; however, the release must still be investigated and cleaned up in accordance with the state cleanup law.
- (5) Reservation of rights.** Nothing in this section precludes ecology from taking any actions it deems appropriate to identify contaminated sites consistent with chapter [70A.305](#) RCW.



**WAC 173-340-310 Initial investigation.**

- (1) Purpose.** The purpose of the initial investigation is to determine:

  - (a)** Whether there has been a release or threatened release of a hazardous substance to the environment;
  - (b)** Whether the release or threatened release may pose a threat to human health or the environment;
  - (c)** Whether the population that may be threatened ~~may~~ includes a likely vulnerable population or ~~an~~ overburdened community;
  - (d)** Whether further remedial action is necessary under state cleanup law to confirm whether there has been a release or threatened release that poses a threat to human health or the environment;
  - (e)** Whether further remedial action is necessary under state cleanup law to address the threat to human health and the environment posed by the release or threatened release. This determination is based on the criteria in WAC 173-340-330(5);
  - (f)** Whether an emergency remedial action or an interim action is necessary under state cleanup law to address the threat, and whether persons in the potentially affected vicinity need to be notified of such action;
  - (g)** Whether action under another state or federal law is appropriate; and
  - (h)** The current owners and operators of the site.
- (2) Applicability.** Ecology will complete an initial investigation unless:

  - (a)** The release is exempt from reporting under WAC 173-340-300(2)(a);
  - (b)** The circumstances associated with the release or threatened release are known to ecology and have previously been or currently are being evaluated by ecology or another government agency; or
  - (c)** Ecology does not have a reasonable basis to believe that there has been a release or threatened release of a hazardous substance that may pose a threat to human health or the environment.
- (3) Performance.** To make the determinations specified in subsection (1) of this section, ecology will review readily available information and may collect, or request other persons to collect, additional information.
- (4) Reliance on others.** Ecology may rely on another government agency or a contractor to ecology to conduct an initial investigation on its behalf, provided:

  - (a)** The agency or contractor is not suspected of having contributed to the release or threatened release; and
  - (b)** The agency or contractor has no conflict of interest.

**(5) Timing.**

- (a)** Except as provided under (b) of this subsection, ecology will complete an initial investigation within 90 days of discovering a release or threatened release or receiving a release report under WAC 173-340-300.
- (b)** If an independent investigation, interim action, or cleanup action is completed within 90 days of the discovery of a release or threatened release, ecology will complete an initial investigation by the earlier of the following:
  - (i)** Ninety days after receiving the independent remedial action report required under WAC 173-340-515(4); or
  - (ii)** One hundred eighty days after discovering a release or threatened release or receiving a release report.

**(6) Determinations and next steps.** Within 30 days of completing the initial investigation, ecology will make one of the following determinations and take the applicable steps:

- (a)** No release or threatened release occurred. In this case, ecology will notify the owner and operator in writing of its determination;
- (b)** A release or threatened release occurred, but does not pose a threat to human health or the environment that requires remedial action under state cleanup law. This determination must be based on factors other than performance of remedial action. In this case, ecology will notify the owner and operator in writing of its determination;
- (c)** A release or threatened release occurred that posed a threat to human health or the environment, but no further remedial action is necessary under state cleanup law to address that threat based on the criteria in WAC 173-340-330(5). In this case, ecology will take the following steps:
  - (i)** Perform a site hazard assessment and ranking in accordance with WAC 173-340-320;
  - (ii)** List the site on ecology's no further action sites list in accordance with WAC 173-340-335(2);
  - (iii)** Make any initial investigation report publicly available on ecology's website;
  - (iv)** Notify the owner and operator in writing of ecology's determination; and
  - (v)** Notify the public of ecology's determination in the *Contaminated Site Register* under WAC 173-340-600(7). The notice must include instructions on how to sign up for the site-specific electronic alerts provided by ecology under WAC 173-340-600(6);
- (d)** A release or threatened release may have occurred that poses a threat to human health or the environment, and further remedial action is necessary under state cleanup law to confirm the threat. In this case, ecology will take the steps specified under (e) of this subsection;

- (e)** A release or threatened release occurred that poses a threat to human health or the environment, and further remedial action is necessary under state cleanup law to address the threat based on the criteria in WAC 173-340-330(5). In this case, ecology will take the following steps:

  - (i)** Perform a site hazard assessment and ranking in accordance with WAC 173-340-320;
  - (ii)** List the site on the contaminated sites list in accordance with WAC 173-340-330(2);
  - (iii)** Make any initial investigation report publicly available on ecology's website;
  - (iv)** Notify the owner and operator, and any person who ecology has preliminarily determined to be liable under WAC 173-340-500(1), in writing of ecology's determination. The notice may be combined with the potentially liable person status letter in WAC 173-340-500. The notice must include:

    - (A)** The basis for ecology's determination;
    - (B)** The site's hazard rankings;
    - (C)** Information on the cleanup process provided for in this chapter;
    - (D)** A statement that it is ecology's policy to work cooperatively with persons to accomplish prompt and effective cleanups;
    - (E)** A statement that the notice is not a determination of liability and that cooperating with ecology in planning or conducting a remedial action is not an admission of guilt or liability;
    - (F)** An ecology website where information about the site is publicly available, and instructions on how to sign up for the site-specific electronic alerts provided by ecology under WAC 173-340-600(6); and
    - (G)** An ecology staff or office to contact about the contents of the notice;
  - (v)** Notify the public of ecology's determination in the *Contaminated Site Register* under WAC 173-340-600(7). The notice must include instructions on how to sign up for the site-specific electronic alerts provided by ecology under WAC 173-340-600(6);
  - (vi)** Notify persons within the potentially affected vicinity of the threat, if ecology determines that an emergency remedial action or an interim action is necessary under state cleanup law and that such notice is needed.

    - (A)** Ecology may require the owner or operator to provide the notice on ecology's behalf. If required in writing by ecology, the owner or operator must provide the notice.



**WAC 173-340-320 Site hazard assessment and ranking.**

- (1) Purpose.** The site hazard assessment and ranking process provides a method for ecology to assess and rank threats to human health and the environment posed by a site based on information readily available at the time of assessment. The site hazard assessment and ranking process satisfies the requirements of RCW [70A.305.030\(2\)\(b\)](#), and is not a substitute for a remedial investigation. Ecology uses site hazard assessments and rankings to:

  - (a)** Support decisions to add or remove sites from the contaminated sites list under WAC 173-340-330 or the no further action sites list under WAC 173-340-335;
  - (b)** Prioritize remedial actions and allocate agency resources among and within sites [as part of program planning and assessment](#) under WAC 173-340-340;
  - (c)** Inform the public and the legislature about the threats posed by contaminated sites;
  - (d)** Reflect changes in threats posed by a site based on new information or changes in site conditions; and
  - (e)** Identify whether the population threatened ~~may~~ includes a [likely](#) vulnerable population or ~~an~~ overburdened community.
- (2) Development.** Ecology will establish and maintain a site hazard assessment and ranking process.

  - (a) Functional requirements.** The site hazard assessment and ranking process must enable ecology to use readily available information to:

    - (i)** Rank the potential exposure of human and environmental receptors to confirmed or suspected releases of hazardous substances through each environmental medium;
    - (ii)** Rank the severity of such exposures to human health and the environment;
    - (iii)** Identify whether the [potentially exposed](#) population ~~exposed may~~ includes a [likely](#) vulnerable population or ~~an~~ overburdened community;
    - (iv)** [Identify the environmental health disparity ranking of the potentially exposed population using the environmental health disparities map developed pursuant to RCW 43.70.815 or other readily available information;](#) and
    - ~~(iv)~~**(v)** Report the assessor's level of confidence in the information used for the assessment.
  - (b) Performance standards.** Ecology will establish performance standards for assessing the technical validity, efficiency, consistency, and practical utility of the site hazard assessment and ranking process.
  - (c) Quality assurance.** Ecology will periodically assess whether the site hazard assessment and ranking process meets the performance standards established under (b) of this subsection, and update the process as appropriate.

- (d) Public participation.** When establishing the site hazard assessment and ranking process or making any change to the process that could affect hazard rankings, ecology will provide the public with notice and an opportunity to comment. The public comment period must be at least 30 days.
- (3) Implementation.**

  - (a) Applicability and timing.**

    - (i)** Ecology will perform a site hazard assessment and ranking before adding or removing a site from the contaminated sites list under WAC 173-340-330 or the no further action sites list under WAC 173-340-335.
    - (ii)** For sites on the contaminated sites list on the effective date of this section, ecology will conduct a site hazard assessment and ranking as resources permit. As part of the strategic plan required under WAC 173-340-340, ecology will develop goals and strategies for completing a site hazard assessment and ranking of such sites.
    - (iii)** Ecology may also conduct a site hazard assessment and ranking when new information becomes available or when site conditions change.
  - (b) Performance.** Ecology will review readily available information when conducting a site hazard assessment and ranking.
  - (c) Reliance on others.** Ecology may rely on another government agency or a contractor to ecology to perform a site hazard assessment and ranking on its behalf, provided:

    - (i)** The agency or contractor is not suspected of having contributed to the release or threatened release; and
    - (ii)** The agency or contractor has no conflict of interest.
  - (d) Notification.** Upon completing a site hazard assessment and ranking, ecology will:

    - (i)** Make the site's current hazard rankings publicly available on ecology's website under WAC 173-340-600(5). The hazard rankings will include the results specified in subsection (2)(a) of this section; and
    - (ii)** If requested, notify a person electronically under WAC 173-340-600(6).

**WAC 173-340-330 Contaminated sites list.**

- (1) Purpose.** The purpose of the contaminated sites list is to identify:

  - (a)** All sites for which ecology or PLIA has determined further remedial action is necessary under state cleanup law to:

    - (i)** Confirm whether there is a threat to human health or the environment posed by a release or threatened release; or
    - (ii)** Address the threat posed by a release or threatened release, based on the criteria in subsection (5) of this section; and
  - (b)** For each listed site, the site's current remedial action status.
- (2) Adding a site to the list.** After an initial investigation under WAC 173-340-310 or [374-45-040](#), ecology will add a site to the contaminated sites list if ecology or PLIA determines further remedial action is necessary under state cleanup law to:

  - (a)** Confirm whether there is a threat to human health or the environment posed by a release or threatened release; or
  - (b)** Address the threat posed by a release or threatened release, based on the criteria in subsection (5) of this section.
- (3) Tracking the remedial action status of a site.** For each site on the contaminated sites list, ecology will track and include on the list the site's remedial action status. Ecology may change the remedial action status of a site to reflect current conditions.
- (4) Splitting or combining sites on the list.** Ecology may split or combine sites on the contaminated sites list consistent with its authority under chapter [70A.305](#) RCW.
- (5) Removing a site from the list.** Ecology will remove a site from the contaminated sites list if, and only if, ecology or PLIA determines that the listing is erroneous or that the site meets the applicable criteria in this subsection. A person does not need to submit a petition under subsection (6) of this section for ecology to remove a site from the contaminated sites list.

  - (a) Permanent cleanup action.** For sites where the selected cleanup action is permanent, a site must meet the following criteria to be removed from the list:

    - (i)** All cleanup standards have been achieved; and
    - (ii)** All necessary remedial actions under state cleanup law have been completed.
  - (b) Nonpermanent cleanup action without containment.** For sites where the selected cleanup action is not permanent and does not include containment, a site must meet the following criteria to be removed from the list:

    - (i)** All cleanup standards have been achieved; and
    - (ii)** All necessary remedial actions under state cleanup law, except confirmation monitoring and periodic reviews, have been completed.

- (c) **Nonpermanent cleanup action with containment.** For sites where the selected cleanup action is not permanent and includes containment, a site must meet the following criteria to be removed from the list:
- (i) All cleanup standards have been achieved;
  - (ii) All necessary construction has been completed;
  - (iii) All necessary operation and maintenance activities have been completed, except for the following:
    - (A) Passive maintenance activities, such as monitoring, inspections, or periodic repairs; or
    - (B) For solid waste landfills permitted under chapter [173-304](#), [173-350](#), or [173-351](#) WAC, any operation or maintenance activities of systems for explosive gas control, leachate collection, or surface water run-on or runoff management;
  - (iv) All necessary performance monitoring has been completed;
  - (v) Sufficient confirmation monitoring has been completed to demonstrate that the cleanup action effectively contains the hazardous substances of concern at the site;
  - (vi) Any required institutional controls are in place and have been demonstrated to be effective in protecting public health and the environment and the integrity of the cleanup action;
  - (vii) Any required financial assurances are in place; and
  - (viii) Written documentation is present in ecology files that describes what hazardous substances remain on site, where they are located, and the long-term monitoring and maintenance obligations at the site.
- (6) **Petitions for removing a site from the list.** A site owner, operator, or potentially liable person may petition ecology to remove a site from the contaminated sites list if ecology has not removed the site from the list under subsection (5) of this section.
- (a) **Content.** A petition must be in writing and include the following:
- (i) For claims the listing of the site is erroneous, sufficient documentation of investigations to demonstrate to ecology's satisfaction that the listing is erroneous;
  - (ii) For claims based on independent remedial action, a written opinion from ecology or PLIA that no further remedial action is necessary at the site to meet the criteria in subsection (5) of this section. A person may request such an opinion from ecology under WAC 173-340-515(5) or from PLIA under chapter 374-80 WAC, as applicable; or





**WAC 173-340-335 No further action sites list.**

- (1) Purpose.** The purpose of the no further action sites list is to identify:

  - (a)** All sites where ecology or PLIA has determined no further remedial action is necessary under state cleanup law to meet the criteria in WAC 173-340-330(5); and
  - (b)** For each listed site, whether institutional controls or periodic reviews remain necessary at the site.
- (2) Adding a site to the list.** Ecology will add a site to the no further action sites list if, and only if:

  - (a)** After completing an initial investigation, ecology or PLIA determines that no further remedial action is necessary under state cleanup law to meet the criteria in WAC 173-340-330(5); or
  - (b)** Ecology removes the site from the contaminated sites list based on the criteria in WAC 173-340-330(5).
- (3) Tracking institutional controls and periodic reviews.** For each site on the no further action sites list, ecology will identify on the list whether the site requires:

  - (a)** Institutional controls under WAC 173-340-440; or
  - (b)** Periodic reviews under WAC 173-340-420.
- (4) Removing a site from the list.** If ecology relists a site on the contaminated sites list under WAC 173-340-330(8), ecology will remove the site from the no further action sites list.
- (5) Notification.**

  - (a)** Ecology will make the no further action sites list publicly available on ecology's website.
  - (b)** If requested, ecology will notify a person electronically under WAC 173-340-600(6) upon adding or removing a site on the no further action sites list.

**WAC 173-340-340 Program planning and assessment.**

- (1) Strategic plan.** Ecology will develop and periodically update a comprehensive and integrated strategic plan for cleaning up contaminated sites. The strategic plan must prioritize contaminated sites that threaten likely vulnerable populations and overburdened communities ~~that may be impacted by a contaminated site~~, and consider the resource allocation factors in subsection (2) of this section. The strategic plan must include:

  - (a)** Goals and strategies for all core program functions and major initiatives;
  - (b)** Metrics to track and measure progress in accomplishing the goals and implementing the strategies; and
  - (c)** Staffing and capital funds needed to accomplish the goals and implement the strategies.
- (2) Resource allocation.** In fulfilling the objectives of this chapter, ecology will allocate staffing and capital funds based on the following factors:

  - (a)** The threats posed by a contaminated site to human health and the environment;
  - (b)** Whether the population threatened by a contaminated site ~~may~~ includes a likely vulnerable population or ~~an~~ overburdened community;
  - (c)** The land reuse potential and planning for a contaminated site; and
  - (d)** Other factors specified by the legislature or ecology.
- (3) Performance assessment.** Ecology will periodically assess its progress in accomplishing its goals and implementing its strategies for cleaning up contaminated sites, including its progress in cleaning up sites that ~~may impact~~ threaten likely vulnerable populations and overburdened communities, using the metrics established under subsection (1)(b) of this section.
- (4) Notification.**

  - (a)** Ecology will make the strategic plans and performance assessments required under subsections (1) and (3) of this section publicly available on ecology's website.
  - (b)** Ecology will provide notice in the *Contaminated Site Register* of the following:

    - (i)** Any update to the strategic plans or performance assessments required under subsections (1) and (3) of this section; and
    - (ii)** Any additional resource allocation factors specified by the legislature or ecology under subsection (2)(d) of this section.

**WAC 173-340-350 Remedial investigation.**

- (1) Purpose.** The purpose of a remedial investigation is to adequately characterize a contaminated site, including the distribution of hazardous substances and the threat they pose to human health and the environment, to enable:

  - (a)** Cleanup standards to be established under Part 7 of this chapter; and
  - (b)** Cleanup action alternatives to be developed and evaluated in a feasibility study under WAC 173-340-351.
  
- (2) Applicability.**

  - (a) Whether required.** A remedial investigation of a contaminated site must be conducted regardless of which administrative option in WAC 173-340-510 is used to conduct remedial action at the site.
  - (b) Requirements.** A remedial investigation must comply with the requirements in this section and, as applicable, the following:

    - (i)** For sites where there is a release or threatened release to sediment, the applicable requirements in WAC 173-204-550.
    - (ii)** For sites on the national priorities list, the applicable requirements under the federal cleanup law.
  
- (3) Timing and phasing.**

  - (a)** Except as otherwise directed by ecology, a remedial investigation/~~feasibility study~~ must be completed before cleanup standards are established and a cleanup action is selected. An emergency remedial action or an interim action may be conducted before a remedial investigation/feasibility study is completed.
  - (b)** A remedial investigation/~~feasibility study~~ may be conducted, or required by ecology to be conducted, for the entire site or for separate parts of a site, such as a sediment cleanup unit as defined in WAC 173-204-505.
  - (c)** A remedial investigation/~~and a~~ feasibility study may be conducted, or required by ecology to be conducted, as a single step or as separate steps in the cleanup process.
  - (d)** A remedial investigation may be conducted, or required by ecology to be conducted, in phases. For example, additional remedial investigation may be necessary to fill data gaps identified in earlier investigations or to determine the applicability of a model remedy at a site.
  
- (4) Administrative options and requirements.** A remedial investigation may be conducted under any of the administrative options for remedial action described in WAC 173-340-510. Reporting and public participation requirements depend on the administrative option used to conduct remedial action.

- (a) **Ecology-conducted or ecology-supervised remedial actions.** For an ecology-conducted or ecology-supervised remedial investigation, ecology will provide or require:

  - (i) A remedial investigation work plan that complies with the requirements in subsection (5)(b) of this section and WAC 173-340-840. For ecology-supervised remedial actions, ecology may require submittal of a work plan for its review and approval;
  - (ii) A remedial investigation report that complies with the requirements in subsection (5)(g) of this section and WAC 173-340-840. For ecology-supervised remedial actions, ecology may require submittal of a report for its review and approval; and
  - (iii) Public notice of a remedial investigation report in accordance with WAC 173-340-600(13).
- (b) **Independent remedial actions.**

  - (i) Independent remedial investigations of a site must be reported to ecology in accordance with WAC 173-340-515. Such investigations may need to be reported separately upon completion (see WAC 173-340-515(4)(a)). Reports must include, as appropriate, the information specified in subsection (5)(g) of this section.
  - (ii) Ecology will notify the public of an independent investigation report in accordance with WAC 173-340-600(20).
- (5) **Steps.** Except as otherwise directed by ecology, a remedial investigation must be conducted in accordance with the following steps.

  - (a) **Step 1: Identify scope.** Identify the scope of the remedial investigation. The scope depends on many factors, including the nature and extent of contamination, the exposure pathways of concern, the human and ecological receptors potentially impacted by the contamination, the characteristics of the site, the type of cleanup action alternatives likely to be evaluated, and information previously obtained about the site. To determine the scope, do the following:

    - (i) Identify what information is needed about the site to comply with the requirements in (c) of this subsection and chapter 197-11 WAC, the State Environmental Policy Act rules (see WAC 197-11-250);
    - (ii) Assemble and evaluate relevant information collected during any prior remedial actions at the site, such as an initial investigation or an interim action. Previously collected information may be relied upon in the investigation to avoid duplication; and
    - (iii) Identify what additional information needs to be collected during the investigation.

- (b) **Step 2: Develop work plan.** Develop a remedial investigation work plan to collect and evaluate the information identified in Step 1. If required by ecology under subsection (4)(a)(i) of this section, submit the work plan for ecology's review and approval.
- (i) **Content.** Except as otherwise directed by ecology, include the following in the work plan:
- (A) The scope of the investigation identified in Step 1, including a summary of available information about the site and data gaps needing to be addressed by the investigation;
  - (B) A preliminary conceptual site model, as defined in WAC 173-340-200;
  - (C) A target concentration for each hazardous substance in each contaminated environmental medium identified in the preliminary conceptual site model under (b)(i)(B) of this subsection;
  - (D) A sampling and analysis plan meeting the requirements in WAC 173-340-820, including the analytical methods that enable detection of the target concentrations identified in (b)(i)(C) of this subsection;
  - (E) A health and safety plan meeting the requirements in WAC 173-340-810;
  - (F) An inadvertent discovery plan meeting the requirements in WAC 173-340-815;
  - (G) Cleanup action alternatives likely to be considered in the feasibility study, based on available information;
  - (H) Any studies needed to develop or evaluate cleanup action alternatives in the feasibility study, such as treatability or pilot studies;
  - (I) A proposed schedule for completing the remedial investigation/feasibility study and, if required, submittal of a report for ecology review and approval; and
  - (J) Any other information required by ecology.
- (ii) **Flexibility.** The work plan should remain flexible and be streamlined when possible to avoid collection and evaluation of unnecessary information. While it may be appropriate to phase investigations at some sites, ecology encourages expedited investigations. For example, using field screening methods to guide investigations and fast turnaround laboratory analyses to provide real-time feedback may be appropriate at some sites. However, in all cases, sufficient information must be collected and evaluated to meet the purposes in subsection (1) of this section.
- (c) **Step 3: Conduct investigation.** Conduct the remedial investigation in accordance with the work plan developed in Step 2.

- (d) Step 4: Complete conceptual site model.** Based on the results of the remedial investigation conducted in Step 3 and any previously obtained information about the site, complete the development of a conceptual site model, as defined in WAC 173-340-200.
- (e) Step 5: Develop proposed cleanup levels.** Based on the conceptual site model completed in Step 4, develop a proposed cleanup level for each hazardous substance within each affected environmental medium at the site in accordance with Part 7 of this chapter.
- (f) Step 6: Determine whether feasibility study is necessary.** Based on the results of the remedial investigation conducted in Step 3 and any previously obtained information about the site, determine whether a feasibility study is necessary under WAC 173-340-351(2)(a), including:

  - (i)** Whether prior remedial actions conducted at the site constitute a permanent cleanup action; and
  - (ii)** Whether a model remedy may be used as a cleanup action or a cleanup action component at the site.
- (g) Step 7: Report results.** Report the results of the remedial investigation in accordance with subsection (4) of this section. Include the following information in the report:

  - (i)** General information about the site, including:

    - (A)** Project title;
    - (B)** Name, address, and phone number of project coordinator;
    - (C)** Legal description and dimensions of the site;
    - (D)** Current owners and operators; and
    - (E)** Chronological listing of past owners and operators and operational history;
  - (ii)** Maps, figures, or diagrams illustrating relevant existing and historic site features, including:

    - (A)** Sources of releases;
    - (B)** Property boundaries;
    - (C)** Proposed site boundaries, as defined by where hazardous substances exceed the proposed cleanup levels identified in (d)(iv) of this subsection;
    - (D)** Surface topography;
    - (E)** Surface and subsurface structures;

- (F) Surface water, wetlands, and undeveloped areas; and
  - (G) Utility lines and well locations;
  - (iii) The information collected in Step 3, and any information obtained from prior remedial actions relied on during the investigation. Separately include information on threats to likely vulnerable populations and overburdened communities. Previously obtained information may be summarized and referenced to avoid unnecessary duplication;
  - ~~(iii)~~(iv) The conceptual site model completed in Step 4;
  - ~~(iv)~~(v) The proposed cleanup levels developed in Step 5, including:
    - (A) The basis for the proposed cleanup levels; and
    - (B) Any regulatory classifications for, or laws applicable to, each environmental medium (see WAC 173-340-710);
  - ~~(v)~~(vi) A comparison of the proposed cleanup levels developed in Step 5 to the hazardous substance concentrations in each environmental medium;
  - ~~(vi)~~(vii) If a feasibility study is determined not to be necessary in Step 6, sufficient documentation to demonstrate the basis of the determination;
  - ~~(vii)~~ ~~The information collected in Step 3, and any information obtained from prior remedial actions relied on during the investigation. Previously obtained information may be summarized and referenced to avoid unnecessary duplication;~~
  - (viii) Documentation of the proper management and disposal of any waste materials generated as a result of the remedial investigations in accordance with applicable state and federal laws; and
  - (ix) Any other information required by ecology.
- (6) **Investigations.** A remedial investigation must collect and evaluate sufficient information about a site and the surrounding area to meet the purposes in subsection (1) of this section, including the following as applicable to the site.
- (a) **Hazardous substance sources.** Confirmed and suspected releases must be investigated to define the location, estimated quantity, areal and vertical extent, concentration within, and sources of ~~hazardous substances~~releases. Where relevant, information on the physical and chemical characteristics and the biological effects of hazardous substances must be collected.
  - (b) **Soils.** Soils must be investigated to adequately characterize:
    - (i) The areal and vertical distribution and concentrations of hazardous substances in soils; and



- (ii) The properties of surface and subsurface soils that are likely to influence the type and rate of hazardous substance migration or to affect the ability to implement cleanup action alternatives.
- (c) **Groundwater, geology, and hydrogeology.** Groundwater, geology, and hydrogeology must be investigated to adequately characterize:
  - (i) The areal and vertical distribution and concentrations of hazardous substances in the groundwater;
  - (ii) The geologic features affecting the fate and transport of hazardous substances, such as the type, physical properties (such as permeability, density, and fracture characteristics), and distribution of bedrock and unconsolidated materials;
  - (iii) The hydrogeological features affecting the fate and transport of hazardous substances, such as:
    - (A) Groundwater flow direction, rate, and vertical and horizontal gradients for affected and potentially affected groundwater;
    - (B) Groundwater divides;
    - (C) Areas of groundwater recharge and discharge;
    - (D) Areas where groundwater interfaces with surface water;
    - (E) Location of public and private water supply wells; and
    - (F) Groundwater quality data; and
  - (iv) The geologic and hydrogeologic features that are likely to affect the ability to implement cleanup action alternatives.
- (d) **Surface water, sediments, and hydrology.** Surface water, sediments, and hydrology must be investigated to adequately characterize:
  - (i) The areal and vertical distribution and concentrations of hazardous substances in surface water and sediments;
  - (ii) Significant hydrologic features, such as:
    - (A) Surface drainage patterns and quantities;
    - (B) Areas of erosion and sediment deposition, including estimates of sedimentation rates;
    - (C) Surface waters, including flow rates;
    - (D) Floodplains; and
    - (E) Actual or potential hazardous substance migration routes towards and within these features; and

- (iii) The properties of surface and subsurface sediments that are likely to affect the type and rate of hazardous substance migration, the potential for recontamination, or the ability to implement cleanup action alternatives.
- (e) **Air and soil vapor.** The air and soil vapor must be evaluated and, where appropriate, sampled to adequately characterize the potential impacts of vapor migration on subsurface soil gas, on air quality within current and future buildings or other structures, and on outdoor ambient air. Based on contaminant concentrations in soil gas or groundwater, ecology may require expedited sampling of indoor air quality to assess the threat to human health. If the measured indoor air concentrations are higher than applicable cleanup levels, ecology may require an emergency action or an interim action to mitigate the threat to human health.
- (f) **Climate.** Sufficient information, based on best available science, must be collected on current and projected local and regional climatological characteristics to determine which could affect the migration of hazardous substances or the resilience of cleanup action alternatives. Relevant characteristics can include temperature extremes, sea level, seasonal patterns of rainfall, the magnitude and frequency of extreme storm events (such as flooding), the potential for landslides, prevailing wind direction and velocity, variations in barometric pressure, and the potential for wildfires.
- (g) **Land and resource use.** ~~Sufficient information must be collected on the present and proposed land and resource uses, comprehensive plan, and zoning for the site and potentially affected areas to~~To determine the exposure or potential exposure of human and ecological receptors, including likely vulnerable populations and overburdened communities, to hazardous substances at the site, sufficient information must be collected on the following:

  - (i) The present and proposed land and resource uses of the site;
  - (ii) The comprehensive plan and zoning for the site;
  - (iii) Any sensitive environments at the site; and
  - (iv) Any habitat restoration or resource recovery goals for the site.
- (h) **Human receptors.** Sufficient information must be collected on human receptors, ~~including vulnerable populations and overburdened communities, that~~ to determine:

  - (i) Whether the receptors are reasonably likely to be exposed or potentially exposed to hazardous substances based on the land and resource uses identified in (g) of this subsection ~~to determine the;~~
  - (ii) The impact or potential impact of such exposure; and
  - (iii) Whether the receptors include likely vulnerable populations or overburdened communities.
- (i) **Natural resources and ecological receptors.** Sufficient information must be collected on natural resources and ecological receptors that are reasonably likely to be exposed

or potentially exposed to hazardous substances based on the land and resource uses identified in (g) of this subsection to determine the impact or potential impact of such exposure. This includes any information needed to conduct a sediment evaluation under chapter [173-204](#) WAC and any information needed to conduct a terrestrial ecological evaluation or establish an exclusion under WAC 173-340-7490 through 173-340-7494.

- (i) Where appropriate, a terrestrial ecological evaluation may be conducted so as to avoid duplicative studies of soil contamination that will be remediated to address other concerns, such as protection of human health or aquatic ecological receptors. This may be accomplished by evaluating residual threats to the environment after cleanup action alternatives for human health or aquatic ecological protection have been developed. If this approach is used, the remedial investigation may be phased. This approach may not be appropriate at a site where a hazardous substance is primarily an ecological concern and will not obviously be addressed by the cleanup action for the protection of human health, such as zinc; or at a site where the development of a human health based cleanup action is expected to be a lengthy process, and postponing the terrestrial ecological evaluation would cause further harm to the environment.
- (ii) If a simplified or site-specific terrestrial ecological evaluation is not required under WAC 173-340-7491, the basis for the determination must be included in the remedial investigation report.

(j) **Feasibility study applicability.** To determine whether a feasibility study must be conducted under WAC 173-340-351, sufficient information must be collected during the remedial investigation to determine whether:

- (i) ~~Determine whether p~~rior remedial actions at the site constitute a permanent cleanup action and meet the criteria in WAC 173-340-330(5)(a); and
- (ii) ~~Determine whether a~~ model remedy established by ecology may be used as a cleanup action or a cleanup action component at the site under WAC 173-340-390; ~~and~~

~~(iii)~~(k) **Cleanup action alternatives.** If a feasibility study must be conducted under WAC 173-340-351, sufficient information must be collected during the remedial investigation to ~~d~~develop and evaluate cleanup action alternatives in the feasibility study ~~under WAC 173-340-351~~, such as treatability or pilot studies.

**WAC 173-340-351 Feasibility study.**

- (1) Purpose.** The purpose of the feasibility study is to develop and evaluate cleanup action alternatives to enable the selection of a cleanup action that meets the requirements in WAC 173-340-360 and conforms, as appropriate, to the expectations in WAC 173-340-370.
- (2) Applicability.**

  - (a) Whether required.** A feasibility study of cleanup action alternatives must be conducted, regardless of which administrative option in WAC 173-340-510 is used to conduct remedial action, except in the following circumstances.

    - (i) Permanent cleanup action completed.** A feasibility study is not required if prior remedial actions at the site constitute a permanent cleanup action and meet the criteria in WAC 173-340-330(5)(a). To qualify for this exemption, sufficient information must be collected and included in the remedial investigation report to demonstrate the site meets the criteria (see WAC 173-340-350(6)(j)(i) and (5)(f)(i) and (g)~~(vi)~~(vii)).
    - (ii) Model remedy selected.** A feasibility study is not required to select a model remedy as the cleanup action or as a component of the cleanup action for a site (see WAC 173-340-390). However, a feasibility study is still required to select any remaining cleanup action components for the site. To qualify for this exemption or partial exemption, sufficient information must be collected and included in the remedial investigation report to demonstrate the site meets the conditions established by ecology for using the model remedy (see WAC 173-340-350(6)(j)(ii) and (5)(f)(ii) and (g)~~(vi)~~(vii)).
  - (b) Requirements.** A feasibility study must comply with the requirements in this section and, as applicable, the following:

    - (i)** For sites where there is a release or threatened release to sediment, the applicable requirements in WAC 173-204-550; and
    - (ii)** For sites on the national priorities list, the applicable requirements under the federal cleanup law.
- (3) Timing and phasing.**

  - (a)** Except as otherwise directed by ecology, a ~~remedial investigation/~~feasibility study must be completed before cleanup standards are established and a cleanup action is selected. An emergency remedial action or an interim action may be conducted before a remedial investigation/feasibility study is completed.
  - (b)** A ~~remedial investigation/~~feasibility study may be conducted, or required by ecology to be conducted, for the entire site or for separate parts of a site, such as a sediment cleanup unit as defined in WAC 173-204-505.
  - (c)** A remedial investigation ~~and a~~ feasibility study may be conducted, or required by ecology to be conducted, as a single step or as separate steps in the cleanup process.

- (d) A feasibility study may be conducted, or required by ecology to be conducted, in phases. For example, additional study may be necessary to evaluate the feasibility of a cleanup action alternative.
- (4) **Administrative options and requirements.** A feasibility study may be conducted under any of the administrative options for remedial action described in WAC 173-340-510. Reporting and public participation requirements depend on the administrative option used to conduct remedial action.

  - (a) **Ecology-conducted or ecology-supervised remedial actions.** For an ecology-conducted or ecology-supervised feasibility study, ecology will provide or require:

    - (i) A feasibility study report that complies with the requirements in subsection (6)(f) of this section and WAC 173-340-840. For ecology-supervised remedial actions, ecology may require submittal of a report for its review and approval; and
    - (ii) Public notice of a feasibility study report in accordance with WAC 173-340-600(13).
  - (b) **Independent remedial actions.** Independent feasibility studies must be reported to ecology in accordance with WAC [173-340-515](#). Unlike for investigations conducted under WAC 173-340-350, such studies do not need to be reported separately upon completion (see WAC 173-340-515(4)(a)). Reports must include, as appropriate, the information specified in subsection (6)(f) of this section.
- (5) **Scope.** A feasibility study must adequately evaluate a reasonable number and type of cleanup action alternatives to meet the purposes in subsection (1) of this section.

  - (a) The scope of the study depends on many factors, including the nature and extent of contamination, the exposure pathways of concern, the human and ecological receptors potentially impacted by the contamination, the characteristics of the site, the type of cleanup action alternatives being evaluated, and any previous evaluations of cleanup action alternatives.
  - (b) The study may rely on previously collected information about the site and previous evaluations of cleanup action alternatives, such as treatability or pilot studies. Such information may be summarized and incorporated by reference in the feasibility study report to avoid unnecessary duplication.
- (6) **Steps.** Except as otherwise directed by ecology, a feasibility study of cleanup action alternatives must be conducted in accordance with the following steps. The study should remain flexible to avoid collecting unnecessary information or conducting unnecessary evaluations.

  - (a) **Step 1: Identify cleanup goals.** Identify the goals for the cleanup action, in addition to compliance with the requirements in WAC 173-340-360. Include any planned future uses of the site [and any habitat restoration or resource recovery goals for the site](#).

- (b) Step 2: Identify alternatives.** Identify cleanup action alternatives for evaluation in the study. The alternatives must achieve the goals identified in Step 1 and comply with the requirements in WAC 173-340-360. Include:

  - (i)** A reasonable number and type of alternatives, taking into account:

    - (A)** The characteristics and complexity of the site, including current site conditions and physical constraints; and
    - (B)** The threats posed by the site to human health and the environment, including [likely](#) vulnerable populations and overburdened communities;
  - (ii)** At least one permanent cleanup action alternative;
  - (iii)** For each environmental medium, at least one alternative with a standard point of compliance (see Part 7 of this chapter);
  - (iv)** As appropriate, alternatives with a conditional point of compliance for one or more environmental media (see Part 7 of this chapter); and
  - (v)** As appropriate, alternatives relying on a combination of cleanup action components for an environmental medium (such as treatment of some soil contamination and containment of the remainder). The alternatives must specify remediation levels for each component (see WAC 173-340-355).
- (c) Step 3: Screen alternatives and components.** Based on a preliminary analysis, eliminate from further evaluation the following cleanup action alternatives or components identified in Step 2:

  - (i)** Alternatives that clearly do not meet the requirements for a cleanup action in WAC 173-340-360, including alternatives for which costs are clearly disproportionate to benefits under WAC 173-340-360(5);
  - (ii)** Alternatives or components that are not technically possible at the site.
- (d) Step 4: Evaluate remaining alternatives.** Conduct a detailed evaluation of each remaining cleanup action alternative to determine whether it meets the requirements in WAC 173-340-360 and conforms to the expectations in WAC 173-340-370. If necessary, conduct additional remedial investigations under WAC 173-340-350 to complete the evaluation, including any investigations needed to complete a terrestrial ecological evaluation;
- (e) Step 5: Select preferred alternative.** Based on the detailed evaluation in Step 4, select a preferred cleanup action alternative that meets the requirements in WAC 173-340-360 and conforms, as appropriate, to the expectations in WAC 173-340-370.
- (f) Step 6: Report results.** Report the results of the feasibility study in accordance with subsection (4) of this section. Include the following information in the report:

  - (i)** If the remedial investigation report is not combined with the feasibility study report, a summary of remedial investigation results, including:

- (A) The conceptual site model used to develop and evaluate cleanup action alternatives;
  - (B) The proposed cleanup level for each hazardous substance within each affected environmental medium at the site, and the basis for the cleanup level; and
  - (C) Maps, cross-sections, and calculations illustrating the location, estimated amount, and concentration distribution of hazardous substances above the proposed cleanup levels for each affected environmental medium at the site;
- (ii) Results of any additional investigations conducted after completing the remedial investigation report;
- (iii) Results of any treatability or pilot studies needed to develop or evaluate cleanup action alternatives;
- (iv) The cleanup goals identified in Step 1 of the feasibility study;
- (v) The cleanup action alternatives identified in Step 2 of the feasibility study. For each alternative, include:
  - (A) The cleanup action components relied on to clean up each affected environmental medium;
  - (B) For alternatives relying on a combination of cleanup action components to clean up an environmental medium, the proposed remediation levels and the basis for those levels;
  - (C) The proposed point of compliance for each hazardous substance within each affected environmental medium at the site, and the basis for any conditional points of compliance (see Part 7 of this chapter);
  - (D) The location and estimated ~~amount~~ mass of each hazardous substance to be removed or treated by the alternative and the estimated time frame in which removal or treatment will occur. Ecology may require or allow estimates of the volume of contaminated material in place of, or in addition to, estimates of the mass of hazardous substances; and
  - (E) The location, estimated ~~amount~~ mass, and projected concentration distribution of each hazardous substance remaining above proposed cleanup levels after implementing the alternative. Ecology may require or allow estimates of the volume of contaminated material in place of, or in addition to, estimates of the mass of hazardous substances;
- (vi) The cleanup action alternatives eliminated from further evaluation during the screening process in Step 3 of the feasibility study, and the basis for elimination;

- (vii)** Documentation of the detailed evaluation process in Step 4 of the feasibility study, including how impacts on [likely](#) vulnerable populations and overburdened communities were considered in the evaluation, and the basis for eliminating any alternative from further evaluation;
- (viii)** The preferred cleanup action alternative selected in Step 5 of the feasibility study, including:

  - (A)** The basis for selecting the alternative and for any nonconformance to the expectations in WAC 173-340-370;
  - (B)** Any local, state, or federal laws applicable to the alternative, including any known permits or approval conditions (see WAC 173-340-710);
  - (C)** As appropriate, proposed indicator hazardous substances for the alternative (see WAC 173-340-703); and
  - (D)** Sufficient information about the alternative to enable ecology to conduct the evaluations and make the determinations required under chapter [43.21C](#) RCW, the State Environmental Policy Act, and chapter 197-11 WAC, the State Environmental Policy Act Rules;
- (ix)** Documentation of the proper management and disposal of any waste materials generated as a result of the feasibility study in accordance with applicable state and federal laws; and
- (x)** Any other information required by ecology.



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

- (1) **Purpose.** A cleanup action often relies on a combination of cleanup action components to remediate an environmental medium. For example, to remediate soil, a cleanup action may rely on treatment of some soil contamination and containment of the remainder. The purpose of a remediation level is to specify when the various components are used as part of a cleanup action.
- (2) **Applicability.** Remediation levels must be established as part of a cleanup action if the cleanup action relies on a combination of cleanup action components to remediate [a hazardous substance in](#) an environmental medium.
- (3) **Types.** Remediation levels may be based on a concentration (e.g., all soil above a specified concentration will be treated), or other method of identification, such as the physical appearance or location of the contamination (e.g., all of the green sludge will be removed from the northwest quadrant of the site).
- (4) **Development.** Remediation levels must be developed and evaluated as part of a cleanup action alternative during the feasibility study conducted under WAC 173-340-351. Quantitative or qualitative methods may be used to develop remediation levels. The methods may include a human health or ecological risk assessment. The methods may also consider fate and transport issues. The methods may be simple or complex, as appropriate to the site. Where a quantitative risk assessment is used, see WAC 173-340-357.
- ~~(5)~~ [\(5\) Selection. The remediation levels selected as part of a cleanup action must be specified in the cleanup action plan under WAC 173-340-380\(5\).](#)
- ~~(5)~~[\(6\) Relationship to cleanup levels and cleanup standards.](#) Remediation levels are not the same as cleanup levels or cleanup standards.
  - (a) A cleanup level defines the concentration of a hazardous substance above which a contaminated environmental medium (such as soil) must be remediated in some manner (such as treatment, containment, or institutional controls). A remediation level, on the other hand, defines the concentration (or other method of identification) of a hazardous substance in an environmental medium at which a particular cleanup action component (such as soil treatment versus containment) will be used. Remediation levels, by definition, exceed cleanup levels.
  - (b) Cleanup levels must be established for every site. Remediation levels, on the other hand, must be established only if a cleanup action relies on a combination of cleanup action components to remediate an environmental medium.
  - (c) Cleanup actions, including those relying on a combination of cleanup action components to remediate an environmental medium, must meet each of the requirements in WAC 173-340-360, including compliance with cleanup standards. If a remedial action does not comply with cleanup standards, the remedial action is an interim action, not a cleanup action.

~~(6)~~(7) **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 using remediation levels, must be evaluated to determine whether they meet each of the requirements in WAC 173-340-360.

- (a) **Example of a site meeting soil cleanup levels at the point of compliance.** Assume the soil cleanup level for a hazardous substance at a site is 20 ppm. This means any soil exceeding 20 ppm at the applicable point of compliance must be remediated. Further assume the cleanup action consists of treating soil above 100 ppm and removing to an offsite landfill soil between 100 and 20 ppm. In this case, 100 ppm is a remediation level that defines which soil will be treated and which soil will be removed from the site. The cleanup action may be determined to comply with the cleanup standard because the 20 ppm soil 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 the soil cleanup level for a hazardous substance at a site is 20 ppm. This means any soil exceeding 20 ppm at the applicable point of compliance must be remediated. Further assume the cleanup action consists of treating soil above 100 ppm and containing soil between 100 and 20 ppm. The 100 ppm concentration is a remediation level that defines which soil will be treated and which soil will be contained at the site. Even though contamination above the 20 ppm cleanup level remains at the site, if 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 the groundwater cleanup level for a hazardous substance at a site is 500 ug/l and a conditional point of compliance is established at the property boundary. This means any groundwater exceeding 500 ug/l at the point of compliance must be remediated. Further assume the cleanup action consists of: Removing the source of the groundwater contamination (such as removing 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 2,000 ug/l concentration is a remediation level that defines which groundwater will be actively treated and which groundwater will be naturally attenuated at the site. As long as the groundwater meets the 500 ug/l cleanup level at the conditional point of compliance, 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 the groundwater cleanup level at a site is 5 ug/l and a conditional point of compliance is established at the property boundary. This means any groundwater exceeding 5 ug/l at the point of compliance must be remediated. Further assume 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 the groundwater cleanup level will not be met at the conditional point of compliance (the property boundary). The concentration of 100 ug/l is a remediation level that defines which groundwater will be treated on site. In this example, the remedial action is an interim action, not a cleanup action, because it does not comply with cleanup standards (that is, it does not achieve the 5 ug/l cleanup level at the conditional point of compliance).

**WAC 173-340-357 Quantitative risk assessment of cleanup action alternatives.**

- (1) **Purpose.** A cleanup action must protect human health and the environment, including [likely](#) vulnerable populations and overburdened communities (see WAC 173-340-360(3)(a)(i)). A quantitative site-specific risk assessment may be used to help determine whether cleanup action alternatives, including those relying on engineered or institutional controls to limit exposure to contamination remaining at a site, protect human health and the environment. Other methods may be used in addition to, or instead of, a quantitative site-specific risk assessment to determine whether a cleanup action alternative is protective.
- (2) **Human health risk assessment.** A quantitative site-specific human health risk assessment may be used to help determine whether cleanup action alternatives, including those relying on engineered or institutional controls to limit exposure, protect human health. This subsection defines the framework for assessing cleanup action alternatives relying on engineered or institutional controls to limit exposure. References to Method C in this subsection apply to an environmental medium only if the medium for which a remediation level is being established qualifies for a Method C cleanup level under WAC 173-340-706.
  - (a) **Reasonable maximum exposure.** Standard reasonable maximum exposures and corresponding Method B and C equations in WAC 173-340-720 through 173-340-750 may be modified as provided under WAC 173-340-708(3)(d). For example, land uses other than residential and industrial may be used as the basis for an alternative reasonable maximum exposure scenario for the purpose of assessing the protectiveness of a cleanup action alternative that relies on engineered or institutional controls (such as containment) to limit exposure to contaminated soil.
  - (b) **Exposure parameters.** Exposure parameters for the standard Method B and C equations in WAC 173-340-720 through 173-340-750 may be modified as provided in WAC 173-340-708(10).
  - (c) **Acceptable risk level.** The acceptable risk level used to establish a remediation level for a hazardous substance must be the same as that used to establish the cleanup level for the substance.
  - (d) **Soil to groundwater pathway.** The methods specified in WAC 173-340-747 to develop soil concentrations that are protective of groundwater beneficial uses may also be used to help assess whether a cleanup action alternative that relies on engineered or institutional controls (such as soil containment) will protect groundwater.
  - (e) **Burden of proof, new science, and quality of information.** Any modification of the default assumptions in the standard Method B and C equations, including modification of the standard reasonable maximum exposures and exposure parameters, or any modification of default assumptions or methods specified in WAC 173-340-747 requires compliance with WAC 173-340-702(14), (15) and (16).
  - (f) **Commercial gas station scenario.** At active commercial gas stations, where there are retail sales of gasoline or diesel, one of the following may be done to demonstrate when a cap is protective of the soil ingestion and dermal pathways:

- (i) Equations 740-3 and 740-5 may be modified by reducing the exposure frequency to 0.25. This exposure frequency is intended to be a conservative estimate of a child trespasser scenario at a commercial gas station where contaminated soil has been excavated and stockpiled or soil is otherwise accessible. To rely on this exposure frequency:

    - (A) The cleanup action must include institutional controls that prevent uses that could result in a higher level of exposure; and
    - (B) Other exposure pathways (e.g., soil vapors and soil to groundwater) must be assessed to determine whether they are protective; or
  - (ii) Equations 740-3 and 740-5 may be modified on a site-specific basis as described in WAC 173-340-740(3)(c).
- (3) **Ecological risk assessment.** A quantitative site-specific ecological risk assessment may be used to help determine whether cleanup action alternatives, including those relying on engineered or institutional controls to limit exposure, protect the environment.

**WAC 173-340-360 Cleanup action requirements.**

- (1) Purpose.** This section specifies requirements for cleanup actions and the procedures for determining whether a cleanup action alternative meets those requirements.
- (2) Applicability.** A cleanup action at a contaminated site must comply with the requirements in this section, regardless of which administrative option in WAC 173-340-510 is used to conduct remedial action at the site.

  - (a) Sediment sites and sediment cleanup units.** For sites where there is a release or threatened release to sediment, a cleanup action must also comply with the applicable requirements in WAC 173-204-570.
  - (b) National priorities list sites.** For sites on the national priorities list, a cleanup action must also comply with applicable requirements under the federal cleanup law.
- (3) Requirements.** A cleanup action must meet all of the requirements in this subsection. When a cleanup action includes more than one cleanup action component, the overall cleanup action must meet the requirements in this subsection. Ecology recognizes that some of the requirements contain flexibility and require the use of professional judgment in determining how to apply them at a particular site.

  - (a) General requirements.** A cleanup action must:

    - (i)** Protect human health and the environment, including [likely](#) vulnerable populations and overburdened communities;
    - (ii)** Comply with cleanup standards (see Part 7 of this chapter);
    - (iii)** Comply with applicable state and federal laws (see WAC 173-340-710);
    - (iv)** Prevent or minimize present and future releases and migration of hazardous substances in the environment;
    - (v)** Provide resilience to climate change impacts that have a high likelihood of occurring and severely compromising its long-term effectiveness;
    - (vi)** Provide for compliance monitoring (see WAC 173-340-410 and Part 7 of this chapter);
    - (vii)** Not rely primarily on institutional controls and monitoring at a site, or portion thereof, if it is technically possible to implement a more permanent cleanup action;
    - (viii)** Not rely primarily on dilution and dispersion unless the incremental costs of any active remedial measures over the costs of dilution and dispersion grossly exceed the incremental degree of benefits of active remedial measures over the benefits of dilution and dispersion. Determine the benefits and costs using the criteria in subsection (5)(d) of this section;

- (ix) Provide for a reasonable restoration time frame (see subsection (4) of this section); and
      - (x) Use permanent solutions to the maximum extent practicable (see subsection (5) of this section).
  - (b) **Action-specific requirements.** As applicable, a cleanup action must:
    - (i) Use remediation levels in accordance with WAC 173-340-355;
    - (ii) Use institutional controls in accordance with WAC 173-340-440;
    - (iii) Provide financial assurances in accordance with WAC 173-340-440(11); and
    - (iv) Provide for periodic reviews in accordance with WAC 173-340-420(2).
  - (c) **Media-specific requirements.**
    - (i) A soil cleanup action must treat, remove, or contain contaminated soils located on properties:
      - (A) Where a school or child care center is located;
      - (B) That qualify as a residential area based on current use; or
      - (C) That qualify as a potential future residential area based on zoning, statutory and regulatory restrictions, comprehensive plans, historical use, adjacent land uses, and other relevant factors.
    - (ii) A groundwater cleanup action must be permanent (achieve groundwater cleanup levels at the standard point of compliance without further remedial action being required) if:
      - (A) Such an action is practicable; or
      - (B) Ecology determines such an action is in the public interest.
    - (iii) A nonpermanent groundwater cleanup action must:
      - (A) Treat or remove the source of groundwater contamination at sites where there are liquid wastes, areas contaminated with high concentrations of hazardous substances, highly mobile hazardous substances, or hazardous substances that cannot be reliably contained. This includes removal of free product consisting of petroleum and other light nonaqueous phase liquid (LNAPL) from the groundwater using normally accepted engineering practices. Source containment may be appropriate when the free product consists of a dense nonaqueous phase liquid (DNAPL) that cannot be recovered after reasonable efforts have been made; [and](#)
      - (B) Contain contaminated groundwater to the maximum extent practicable to prevent lateral and vertical expansion of the groundwater volume

affected by the hazardous substances and to prevent the migration of the hazardous substances. This includes barriers or hydraulic control through groundwater pumping, or both ~~and~~

~~(C) Provide an alternate water supply or treatment if the cleanup action does not protect an existing use of the groundwater. A cleanup action is not protective of an existing use if a hazardous substance concentration exceeds the protective groundwater concentration for that use.~~

**(d) Public concerns and tribal rights and interests.** For ecology-conducted or ecology-supervised remedial actions, ecology will consider the following when selecting a cleanup action:

- (i)** Public concerns, including the concerns of [likely](#) vulnerable populations and overburdened communities, identified under WAC 173-340-600(13) and (14); and
- (ii)** Indian tribes' rights and interests identified under WAC 173-340-620.

**(4) Determining whether a cleanup action provides for a reasonable restoration time frame.**

**(a) Purpose.** The restoration time frame is the period of time needed for a cleanup action to achieve cleanup levels at the point of compliance (see WAC 173-340-200). This subsection specifies the requirements and procedures for determining whether a cleanup action alternative provides for a reasonable restoration time frame, as required under subsection (3)(a)(ix) of this section.

**(b) Applicability.**

**(i) Whether evaluation required.** An evaluation of whether a cleanup action alternative provides a reasonable restoration time frame must be conducted unless a model remedy is selected as the cleanup action. The evaluation must be conducted regardless of which administrative option in WAC 173-340-510 is used to conduct remedial action at the site.

**(ii) Evaluation requirements.**

- (A)** For restoration of environmental media other than sediment, the evaluation must be conducted in accordance with this subsection;
- (B)** For restoration of sediment, the evaluation must be conducted in accordance with WAC [173-204-570](#)(5).

**(c) Evaluation.** To determine whether a cleanup action alternative provides for a reasonable restoration time frame, the following factors must be considered at a minimum:

- (i)** Potential risks posed by the site to human health and the environment, including [likely](#) vulnerable populations and overburdened communities;



- (ii) Practicability of achieving a shorter restoration time frame. A restoration time frame is not reasonable if an active remedial measure with a shorter restoration time frame is practicable;
  - (iii) Long-term effectiveness of the alternative. A longer restoration time frame may be reasonable if the alternative has a greater degree of long-term effectiveness than one that primarily relies on on-site or offsite disposal, isolation, or containment;
  - (iv) Current use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site;
  - (v) Potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site;
  - (vi) Availability of alternative water supplies;
  - (vii) Likely effectiveness and reliability of institutional controls;
  - (viii) Ability to control and monitor migration of hazardous substances from the site;
  - (ix) Toxicity of the hazardous substances at the site;
  - (x) Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the site or under similar site conditions; and
  - (xi) For ecology-conducted or ecology-supervised remedial actions, public concerns identified under WAC 173-340-600(13) and (14) and Indian tribes' rights and interests identified under WAC 173-340-620.
- (d) **Cleanup levels below area background concentrations.** At sites where area background concentrations, as defined in WAC 173-340-200, would result in recontamination of the site to levels that exceed cleanup levels:
- (i) The remedial action must achieve area background concentrations within a reasonable restoration time frame, as determined under (c) of this subsection;
  - (ii) Cleaning up the site below area background concentrations may be delayed until the off-site sources of hazardous substances are controlled; and
  - (iii) The remedial action is an interim action until cleanup levels are attained.
- (e) **Cleanup levels below technically possible concentrations.** At sites where cleanup levels determined under Method C in WAC 173-340-706 are below concentrations that are technically possible to achieve:
- (i) The remedial action must achieve concentrations that are technically possible to achieve within a reasonable restoration time frame, as determined under (c) of this subsection; and
  - (ii) The remedial action is an interim action until cleanup levels are attained.

- (5) Determining whether a cleanup action uses permanent solutions to the maximum extent practicable.**
- (a) Purpose.** This subsection specifies the requirements and procedures for determining whether a cleanup action uses permanent solutions to the maximum extent practicable, as required under RCW [70A.305.030](#)(1) and subsection (3)(a)(x) of this section. A permanent cleanup action or permanent solution is defined in WAC 173-340-200.
- (b) Applicability.** The evaluation required under this subsection must be conducted unless a permanent cleanup action alternative or a model remedy is selected as the cleanup action. The evaluation must be conducted regardless of which administrative option in WAC 173-340-510 is used to conduct the cleanup action.
- (c) Procedure.** To determine which cleanup action alternative included in the feasibility study uses permanent solutions to the maximum extent practicable, do the following:
- (i) Step 1:** Determine the benefits and costs of each cleanup action alternative using the criteria in (d) of this subsection.
- (A)** The estimation and comparison of benefits and costs may be quantitative, but will often be qualitative and require the use of best professional judgment.
- (B)** On a site-specific basis, ecology may weight the criteria in (d) of this subsection and favor or disfavor qualitative benefit and cost estimates in the analysis.
- (C)** For ecology-conducted or ecology-supervised remedial actions, when determining or weighting the benefits in (d) of this subsection, ecology will also consider:
- (I)** Public concerns identified under WAC 173-340-600(13) and (14); and
- (II)** Indian tribes' rights and interests identified under WAC 173-340-620.
- (ii) Step 2:** Rank the cleanup action alternatives by degree of permanence. To determine the relative permanence of an alternative, consider the definition of a permanent cleanup action in WAC 173-340-200 and the criteria in (d)(ii) of this subsection.
- (iii) Step 3:** Identify the initial baseline alternative for use in the disproportionate cost analysis in Step 4.
- (A)** If the feasibility study includes only one permanent cleanup action alternative, use that alternative as the initial baseline.
- (B)** If the feasibility study includes more than one permanent cleanup action alternative, determine which permanent cleanup action

alternative is the most cost-effective (that is, the alternative with the lowest cost per degree of benefit) and use it as the initial baseline. Eliminate from further evaluation the less cost-effective permanent cleanup action alternatives.

- (C) If all permanent cleanup action alternatives are eliminated from evaluation in the feasibility study during the screening process in WAC ~~173-340-350(7)(c)(iii)~~ 173-340-351(6)(c), use the most permanent cleanup action alternative identified in Step 2 as the initial baseline.

- (iv) **Step 4:** Conduct a disproportionate cost analysis of the ranked list of cleanup action alternatives identified in Step 2. Use the cleanup action alternative identified in Step 3 as the initial baseline for the analysis.

- (A) **Analysis.** To conduct the analysis, do the following:

- (I) First, compare the costs and benefits of the baseline alternative with the costs and benefits of only the next most permanent alternative (not any of the other alternatives); and
- (II) Second, determine whether the incremental costs of the baseline alternative over the next most permanent alternative are disproportionate to the incremental degree of benefits of the baseline alternative over the next most permanent alternative.

- (B) **Decision.** Based on the results of the analysis, do the following:

- (I) If the incremental costs are not disproportionate to the incremental degree of benefits, then the baseline alternative uses permanent solutions to the maximum extent practicable and the analysis under this subsection is complete.
- (II) If the benefits of the two alternatives are the same or similar, then the lower cost alternative uses permanent solutions to the maximum extent practicable and the analysis under this subsection is complete.
- (III) If the incremental costs are disproportionate to the incremental degree of benefits, then eliminate the baseline alternative from further analysis and make the next most permanent alternative the baseline for further analysis. Repeat Step 4. However, if the new baseline is the least permanent alternative on the ranked list of alternatives identified in Step 2, that alternative uses permanent solutions to the maximum extent practicable and the analysis under this subsection is complete.

- (d) **Criteria.** When conducting a disproportionate cost analysis under this subsection, use the following criteria to evaluate and compare the costs and benefits of each cleanup action alternative:
- (i) **Protectiveness.** The degree to which the alternative protects human health and the environment, including [likely](#) vulnerable populations and overburdened communities. When assessing protectiveness, consider at least the following:
    - (A) The degree to which the alternative reduces existing risks;
    - (B) The time required for the alternative to reduce risks at the site and attain cleanup standards;
    - (C) The on-site and offsite risks remaining after implementing the alternative; and
    - (D) Improvement of the overall environmental quality;
  - (ii) **Permanence.** The degree to which the alternative permanently reduces the toxicity, mobility, or mass of ~~or exposure to~~ hazardous substances, including:
    - (A) The adequacy of the alternative in destroying the hazardous substances;
    - (B) The reduction or elimination of hazardous substance releases and sources of releases;
    - (C) The degree of irreversibility of waste treatment process; and
    - (D) The characteristics and quantity of treatment residuals generated;
  - (iii) **Effectiveness over the long term.** The degree to which the alternative is likely to be effective over the long term, including for [likely](#) vulnerable populations and overburdened communities.
    - (A) **Factors.** When assessing the long-term effectiveness of the alternative, consider at least the following:
      - (I) The degree of certainty that the alternative will be successful;
      - (II) The reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels;
      - (III) The resilience of the alternative to climate change impacts;
      - (IV) The magnitude of residual risk with the alternative in place; and
      - (V) The effectiveness of controls required to manage treatment residues or remaining wastes.
    - (B) **Hierarchy.** Except as provided for sediment sites and cleanup units in WAC [173-204-570](#)(4), when assessing the relative degree of long-term

effectiveness of cleanup action components, the following types of components may be used as a guide, in descending order:

- (I) Reuse or recycling;
  - (II) Destruction or detoxification;
  - (III) Immobilization or solidification;
  - (IV) On-site or offsite disposal in an engineered, lined and monitored facility;
  - (V) On-site isolation or containment with attendant engineering controls; and
  - (VI) Institutional controls and monitoring;
- (iv) **Management of implementation risks.** The risks to human health and the environment, including likely vulnerable populations and overburdened communities, associated with the alternative during construction and implementation, and the effectiveness of the alternative to manage such risks;
- (v) **Technical and administrative implementability.** The ability to implement the alternative, including consideration of:
- (A) The technical difficulty of designing, constructing, and otherwise implementing the alternative in a reliable and effective manner, regardless of cost;
  - (B) The availability of necessary offsite facilities, services, and materials;
  - (C) Administrative and regulatory requirements;
  - (D) Scheduling, size, and complexity;
  - (E) Monitoring requirements;
  - (F) Access for construction operations and monitoring; and
  - (G) Integration with existing facility operations and other current or potential remedial actions; and
- (vi) **Costs.** The costs of remedial actions necessary to implement the alternative, including:
- (A) **Construction costs**, such as preconstruction engineering design and permitting, physical construction (including labor, equipment, materials, and contingencies), waste management and disposal, compliance monitoring during construction (including sampling and analysis), construction management, establishment of institutional controls, regulatory oversight, and quality assurance and quality control; and

- (B) Postconstruction costs**, such as operation and maintenance activities necessary to maintain the effectiveness of a constructed cleanup action component, waste management and disposal, replacement or repair of equipment (including labor, equipment, and materials), permit renewal, compliance monitoring (including sampling and analysis), maintaining institutional controls, financial assurances, periodic reviews, postconstruction management, and regulatory oversight.
- (I) Design life.** Estimate the design life of cleanup action components, including engineered controls. If the period of time in which a component is needed exceeds the design life of the component, include the cost of replacing or repairing the component in the cost estimate.
- (II) Future costs.** ~~Future costs may be discounted~~Discount postconstruction costs using present worth analysis.~~When discounting future costs, do~~ doing the following:
- Estimate future costs using ~~an appropriate construction cost index~~ constant-year dollars; and
  - Discount future costs using the current U.S. Treasury ~~nominal~~real interest rate for bonds of comparable maturity to the period of analysis. If project costs exceed 30 years, use the current U.S. Treasury 30-year ~~nominal~~real interest rate.

**WAC 173-340-370 Cleanup action expectations.**

Ecology has the following expectations for cleanup actions. The expectations represent the likely results of the cleanup action selection process described in WAC 173-340-350 through 173-340-390. Ecology recognizes that conformance with the expectations may not be appropriate at some sites. Selecting a cleanup action conforming to the expectations is not a substitute for conducting a feasibility study. The expectations must be considered when evaluating cleanup action alternatives in the feasibility study. Any nonconformance of the preferred cleanup action alternative to the expectations must be documented and explained in the feasibility study report.

- (1)** Ecology expects that treatment technologies will be emphasized at sites containing liquid wastes, areas contaminated with high concentrations of hazardous substances, highly mobile materials, and/or discrete areas of hazardous substances that lend themselves to treatment.
- (2)** To minimize the need for long-term management of contaminated materials, ecology expects that all hazardous substances will be destroyed, detoxified, and/or removed to concentrations below cleanup levels throughout sites containing small volumes of hazardous substances.
- (3)** Ecology recognizes the need to use engineering controls, such as containment, for sites or portions of sites that contain large volumes of materials with relatively low levels of hazardous substances where treatment is impracticable.
- (4)** To minimize the potential for migration of hazardous substances, ecology expects that active measures will be taken to prevent precipitation and subsequent runoff from coming into contact with contaminated soils and waste materials. When such measures are impracticable, such as during active cleanup, ecology expects that site runoff will be contained and treated prior to release from the site.
- (5)** Ecology expects that when hazardous substances remain on-site at concentrations exceeding cleanup levels, those hazardous substances will be consolidated to the maximum extent practicable where needed to minimize the potential for direct contact and migration of hazardous substances.
- (6)** Ecology expects that active measures will be taken to prevent/minimize releases to surface water or sediment via surface runoff and groundwater discharges in excess of cleanup levels. Ecology expects that dilution will not be the sole method for demonstrating compliance with cleanup standards in these instances.
- (7)** Ecology expects that natural attenuation of hazardous substances may be appropriate at sites where:
  - (a)** Source control (including removal and/or treatment of hazardous substances) has been conducted to the maximum extent practicable;
  - (b)** Leaving contaminants on-site during the restoration time frame does not pose an unacceptable threat to human health or the environment;
  - (c)** There is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site; and

- (d) Appropriate monitoring requirements are conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected.
- (8) Ecology expects that cleanup actions conducted under this chapter will not result in a significantly greater ~~long-term~~overall threat to human health and the environment from hazardous substances, either at the site being cleaned up or at another site involved with the cleanup action, than other cleanup action alternatives.



**WAC 173-340-380 Cleanup action plan.**

- (1) Purpose.** The purpose of a cleanup action plan is to document the selected cleanup action and to specify the cleanup standards and other requirements the cleanup action must meet.
- (2) Applicability.**

  - (a) Whether required.** A cleanup action must be selected and a cleanup action plan must be developed regardless of which administrative option in WAC 173-340-510 is used to conduct remedial action at the site.
  - (b) Requirements.** A cleanup action plan must comply with the requirements in this section. For sites where there is a release or threatened release to sediment, a cleanup action plan must also comply with the applicable requirements in WAC [173-204-575](#).
- (3) Timing.** Except as otherwise directed by ecology, a remedial investigation/feasibility study must be completed before cleanup standards are established and a cleanup action is selected. An emergency remedial action or an interim action may be conducted before a cleanup action is selected.
- (4) Administrative options and requirements.** A cleanup action may be selected and a cleanup action plan may be developed under any of the administrative options for remedial action described in WAC 173-340-510. Reporting and public participation requirements depend on the administrative option used to conduct remedial action.

  - (a) Ecology-conducted or ecology-supervised remedial actions.** For an ecology-conducted or ecology-supervised cleanup action, ecology will:

    - (i)** Select the cleanup action and establish the cleanup standards and other requirements that the cleanup action must meet;
    - (ii)** Issue a draft cleanup action plan that includes the information required in subsection (5) of this section. For routine actions, ecology may include the draft cleanup action plan in an order or decree instead of in a separate document;
    - (iii)** Provide or require public notice of the draft cleanup action plan in accordance with WAC 173-340-600(14);
    - (iv)** After review and consideration of public comments, issue a final cleanup action plan. For routine actions, ecology may include the final cleanup action plan in an order or decree instead of in a separate document; and
    - (v)** Provide notice of the final cleanup action plan in accordance with WAC 173-340-600(14).
  - (b) Independent remedial actions.** Independent cleanup action plans must be reported to ecology in accordance with WAC 173-340-515. Plans must include, as appropriate, the information specified in subsection (5) of this section.
- (5) Content of cleanup action plan.** A cleanup action plan must include the following information and provide a level of detail commensurate with the complexity of the site and cleanup action:

- (a) A general description of the cleanup action selected in accordance with WAC 173-340-350 through 173-340-390, including any model remedy;
  - (b) A summary of the rationale for selecting the cleanup action, including any model remedy;
  - (c) A summary of how impacts on likely vulnerable populations and overburdened communities were considered when selecting the cleanup action and developing the plan;
  - ~~(e)~~(d) For ecology-conducted or ecology-supervised remedial actions, a brief summary of how ecology considered the following when selecting the cleanup action:
    - (i) Public concerns identified under WAC 173-340-600(13) and (14); and
    - (ii) Indian tribes' rights and interests identified under WAC 173-340-620;
  - ~~(d)~~(e) A brief summary of the other cleanup action alternatives evaluated in the remedial investigation/feasibility study;
  - ~~(e)~~(f) Cleanup standards and, where applicable, remediation levels, for each hazardous substance and for each environmental medium of concern at the site;
  - ~~(f)~~(g) Any changes to the default assumptions or reasonable maximum exposure scenarios used to establish cleanup standards or to demonstrate the protectiveness of the cleanup action;
  - ~~(g)~~(h) The schedule for implementing the cleanup action plan including, if known, the restoration time frame;
  - ~~(h)~~(i) Any institutional controls required as part of the cleanup action;
  - ~~(i)~~(j) Any applicable state and federal laws for the cleanup action known at this step in the cleanup process. This does not preclude subsequent identification of applicable state and federal laws;
  - ~~(j)~~(k) A preliminary determination by ecology that the cleanup action will comply with WAC 173-340-360; and
  - ~~(k)~~(l) If the cleanup action involves on-site containment, specification of the types, concentrations, and ~~amounts~~estimated mass of hazardous substances remaining on site and the measures that will be used to prevent migration of and exposure to the substances. Ecology may require or allow estimates of the volume of contaminated material in place of, or in addition to, estimates of the mass of hazardous substances.
- (6) **National priorities list sites.** For sites on the national priorities list, ecology may use a record of decision or an order or consent decree prepared under the federal cleanup law to meet the requirements of this section, provided that:
- (a) The cleanup action meets the requirements in WAC 173-340-360;

- (b)** The state concurs with the cleanup action; and
- (c)** The public was provided an opportunity to comment on the cleanup action.

**WAC 173-340-390 Model remedies.**

- (1) Purpose.** The purpose of model remedies is to streamline and accelerate the selection of a cleanup action for routine types of cleanup projects at sites with common features and lower risk to human health and the environment.
- (2) Development of model remedies.** Ecology may establish model remedies for common categories of sites, types of hazardous substances, types of media, and geographic areas. When establishing a model remedy, ecology will:

  - (a)** Identify the applicability of the model remedy for use at a site, the site characterization required under WAC 173-340-350 to select the model remedy, and the compliance monitoring required under WAC 173-340-410 to implement the model remedy;
  - (b)** Describe how the model remedy meets the cleanup standards established under Part 7 of this chapter and the requirements for cleanup actions in WAC 173-340-360; and
  - (c)** Provide the public with notice and an opportunity to comment on the proposed model remedy and the conditions under which it may be used at a site. The public comment period must be at least 30 days.
- (3) Soliciting proposals.** When developing model remedies, ecology will solicit and consider proposals from qualified persons. The proposals must, in addition to describing the model remedy, provide the information required under subsection (2)(a) and (b) of this section.
- (4) Selection.** A model remedy may be selected as a cleanup action, or as a component of a cleanup action, at a site without conducting a feasibility study under WAC 173-340-351, provided that:

  - (a)** The site meets the conditions for using the model remedy identified by ecology under subsection (2)(a) of this section. [To make this demonstration, sufficient information must be collected and documented during the remedial investigation \(see WAC 173-340-350\(6\)\(j\)\(ii\) and \(5\)\(f\)\(ii\) and \(g\)\(vii\)\);](#) and
  - (b)** For ecology-conducted and ecology-supervised remedial actions, ecology provides or requires public notice of the proposed use of the model remedy in the draft cleanup action plan under WAC 173-340-380.

## **Part 4 – Site Cleanup and Monitoring**

**WAC 173-340-400 Cleanup action implementation.**

- (1) Purpose.** Unless otherwise directed by the department, cleanup actions shall comply with this section except for emergencies or interim actions. The purpose of this section is to ensure that the cleanup action is designed, constructed, and operated in a manner that is consistent with:

  - (a)** The cleanup action plan;
  - (b)** Accepted engineering practices; and
  - (c)** The requirements specified in WAC 173-340-360.
- (2) Administrative options.** A cleanup action may be conducted under any of the administrative options for remedial action described in WAC 173-340-510.
- (3) Public participation.** During cleanup action implementation, public participation shall be accomplished in a manner consistent with the requirements of WAC 173-340-600.
- (4) Plans describing the cleanup action.** Design, construction, and operation of the cleanup action shall be consistent with the purposes of this section and shall consider relevant information provided by the remedial investigation/feasibility study. For most cleanups, to ensure this is done it will be necessary to prepare the engineering documents described in this section. The scope and level of detail in these documents may vary from site to site depending on the site-specific conditions and nature and complexity of the proposed cleanup action. In many cases, such as routine cleanups and cleanups at leaking underground storage tanks, it is appropriate to combine the information in these various documents into one report to avoid unnecessary duplication. Where the information is contained in other documents it may be appropriate to incorporate those documents by reference to avoid duplication. Any document prepared in order to implement a cleanup may be used to satisfy these requirements provided they contain the required information. In addition, for facilities on the national priorities list the plans prepared for the cleanup action shall also comply with federal requirements.

  - (a) Engineering design report.** The engineering design report shall include sufficient information for the development and review of construction plans and specifications. It shall document engineering concepts and design criteria used for design of the cleanup action. The following information shall be included in the engineering design report, as appropriate:

    - (i)** Goals of the cleanup action including specific cleanup or performance requirements;
    - (ii)** General information on the facility including a summary of information in the remedial investigation/feasibility study updated as necessary to reflect the current conditions;
    - (iii)** Identification of who will own, operate, and maintain the cleanup action during and following construction;
    - (iv)** Facility maps showing existing site conditions and proposed location of the cleanup action;

- (v)** Characteristics, quantity, and location of materials to be treated or otherwise managed, including groundwater containing hazardous substances;
- (vi)** A schedule for final design and construction;
- (vii)** A description and conceptual plan of the actions, treatment units, facilities, and processes required to implement the cleanup action including flow diagrams;
- (viii)** Engineering justification for design and operation parameters, including:

  - (A)** Design criteria, assumptions and calculations for all components of the cleanup action;
  - (B)** Expected treatment, destruction, immobilization, or containment efficiencies and documentation on how that degree of effectiveness is determined; and
  - (C)** Demonstration that the cleanup action will achieve compliance with cleanup requirements by citing pilot or treatability test data, results from similar operations, or scientific evidence from the literature;
- (ix)** Design features for control of hazardous materials spills and accidental discharges (for example, containment structures, leak detection devices, run-on and runoff controls);
- (x)** Design features to assure long-term safety of workers and local residences (for example, hazardous substances monitoring devices, pressure valves, bypass systems, safety cutoffs);
- (xi)** A discussion of methods for management or disposal of any treatment residual and other waste materials containing hazardous substances generated as a result of the cleanup action;
- (xii)** Facility specific characteristics that may affect design, construction, or operation of the selected cleanup action, including:

  - (A)** Relationship of the proposed cleanup action to existing facility operations;
  - (B)** Probability of flooding, probability of seismic activity, temperature extremes, local planning and development issues; and
  - (C)** Soil characteristics and groundwater system characteristics;
- (xiii)** A general description of construction testing that will be used to demonstrate adequate quality control;
- (xiv)** A general description of compliance monitoring that will be performed during and after construction to meet the requirements of WAC 173-340-410;

- (xv) A general description of construction procedures proposed to assure that the safety and health requirements of WAC 173-340-810 are met;
  - (xvi) Any information not provided in the remedial investigation/feasibility study needed to fulfill the applicable requirements of the State Environmental Policy Act (chapter [43.21C](#) RCW);
  - (xvii) Any additional information needed to address the applicable state, federal and local requirements including the substantive requirements for any exempted permits; and property access issues which need to be resolved to implement the cleanup action;
  - (xviii) For sites requiring financial assurance and where not already incorporated into the order or decree or other previously submitted document, preliminary cost calculations and financial information describing the basis for the amount and form of financial assurance and, a draft financial assurance document;
  - (xix) For sites using institutional controls as part of the cleanup action and where not already incorporated into the order or decree or other previously submitted documents, copies of draft restrictive covenants and/or other draft documents establishing these institutional controls; and
  - (xx) Other information as required by the department.
- (b) **Construction plans and specifications.** Construction plans and specifications shall detail the cleanup actions to be performed. The plans and specifications shall be prepared in conformance with currently accepted engineering practices and techniques and shall include the following information as applicable:
- (i) A general description of the work to be performed and a summary of the engineering design criteria from the engineering design report;
  - (ii) General location map and existing facility conditions map;
  - (iii) A copy of any permits and approvals;
  - (iv) Detailed plans, procedures and material specifications necessary for construction of the cleanup action;
  - (v) Specific quality control tests to be performed to document the construction, including specifications for the testing or reference to specific testing methods, frequency of testing, acceptable results, and other documentation methods;
  - (vi) Startup procedures and criteria to demonstrate the cleanup action is prepared for routine operation;
  - (vii) Additional information to address applicable state, federal, and local requirements including the substantive requirements for any exempted permits;







abandoned drums, tanks and similar above ground containers and associated minor soil contamination may be overseen and documented by an experienced environmental professional. In other appropriate cases the department may authorize departure from the requirements of this subsection.

- (c) **Financial assurance and institutional control documentation.** As part of the as-built documentation for the site cleanup, where the following information has not already been submitted under an order or decree or as part of another previously submitted document, the following information shall be included in the as-built report:

  - (i) For sites requiring financial assurance, a copy of the financial assurance document and any procedures for periodic adjustment to the value of the financial assurance mechanism;
  - (ii) For sites using institutional controls as part of the cleanup action, copies of recorded deed restrictions (with proof of recording) and other documents establishing these institutional controls.
- (d) **Plan modifications.** Changes in the design or construction of the cleanup action performed under an order or decree shall be approved by the department.
- (7) **Public participation.**

  - (a) For an ecology-conducted remedial action, the department will provide public notice of an engineering design report in accordance with WAC 173-340-600(15)(a).
  - (b) For an ecology-conducted or an ecology-supervised remedial action, the department will provide or require public notice of any plan prepared under this section that represents a substantial change from the cleanup action plan in accordance with WAC 173-340-600(15)(b).
- (8) **Plans and reports.** Plans or reports prepared under this section and under an order or decree shall be submitted to the department for review and approval. For independent remedial actions, the plans and reports shall be submitted as required under WAC 173-340-515.
- (9) **Requirements for managing waste generated by site cleanup.** Any waste contaminated by a hazardous substance generated during cleanup activities and requiring offsite treatment, storage or disposal, shall be transported to a facility permitted or approved to handle these wastes.

**WAC 173-340-410 Compliance monitoring.**

- (1) **Purpose.** There are three types of compliance monitoring: Protection, performance, and confirmation monitoring. The purposes of these three types of compliance monitoring and evaluation of the data are to:
- (a) **Protection monitoring.** Confirm that human health and the environment are adequately protected during construction and the operation and maintenance period of an interim action or cleanup action as described in the health and safety plan;
  - (b) **Performance monitoring.** Confirm that the interim action or cleanup action has attained cleanup standards and, if appropriate, remediation levels or other performance standards such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit or, where a permit exemption applies, the substantive requirements of other laws;
  - (c) **Confirmation monitoring.** Confirm the long-term effectiveness of the interim action or cleanup action once cleanup standards and, if appropriate, remediation levels or other performance standards have been attained.
- (2) **General requirements.** Compliance monitoring shall be required for all cleanup actions, and may be required for interim and emergency actions conducted under this chapter. Unless otherwise directed by the department, a compliance monitoring plan shall be prepared.

Plans prepared under this section and under an order or decree shall be submitted to the department for review and approval. Protection monitoring may be addressed in the health and safety plan. Performance and confirmation monitoring may be addressed in separate plans or may be combined with other plans or submittals, such as those in WAC 173-340-400 and 173-340-820.

- (3) **Contents of a monitoring plan.** Compliance monitoring plans may include monitoring for chemical constituents, biological testing, and physical parameters as appropriate for the site. Where the cleanup action includes engineered controls or institutional controls, the monitoring may need to include not only measurements but also documentation of observations on the performance of these controls. Long-term monitoring shall be required if on-site disposal, isolation, or containment is the selected cleanup action for a site or a portion of a site. Such measures shall be required until residual hazardous substance concentrations no longer exceed site cleanup levels established under Part 7 of this chapter. Compliance monitoring plans shall be specific for the media being tested and shall contain the following elements:
- (a) A sampling and analysis plan meeting the requirements of WAC 173-340-820 which shall explain in the statement of objectives how the purposes of subsection (1) of this section are met;
  - (b) Data analysis and evaluation procedures used, to demonstrate and confirm compliance and justification for these procedures, including:
    - (i) A description of any statistical method to be employed; or

- (ii)** If sufficient data is not available before writing the plan to propose a reliable statistical method to demonstrate and confirm compliance, a contingency plan proposing one or more reliable statistical methods to demonstrate and confirm compliance, and the conditions under which the methods would be used at the facility; and
- (c)** Other information as required by the department.

**WAC 173-340-420      Periodic review.**

- (1) Purpose.** A periodic review consists of a review by the department of post-cleanup site conditions and monitoring data to assure that human health and the environment are being protected.
- (2) Applicability.** The department shall conduct periodic reviews of a site whenever the department conducts a cleanup action; whenever the department approves a cleanup action under an order, agreed order or consent decree; or, as resources permit, whenever the department issues a no further action opinion; and one of the following conditions exists, at the site:

  - (a)** Where an institutional control and/or financial assurance is required as part of the cleanup action;
  - (b)** Where the cleanup level is based on a practical quantitation limit as provided for under WAC 173-340-707; and
  - (c)** Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.
- (3) General requirements.** If a periodic review is required under subsection (2) of this section, a review shall be conducted by the department at least every five years after the initiation of a cleanup action. The department may require potentially liable persons to submit information required by the department to conduct a periodic review.
- (4) Review criteria.** When evaluating whether human health and the environment are being protected, the factors the department shall consider include:

  - (a)** The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the site;
  - (b)** New scientific information for individual hazardous substances or mixtures present at the site;
  - (c)** New applicable state and federal laws for hazardous substances present at the site;
  - (d)** Current and projected site and resource uses;
  - (e)** The availability and practicability of more permanent remedies; and
  - (f)** The availability of improved analytical techniques to evaluate compliance with cleanup levels.
- (5) Public participation or notification.**

- (a) For an ecology-conducted or an ecology-supervised remedial action, the department will:

  - (i) Provide public notice of a draft periodic review report in accordance with WAC 173-340-600(18); and
  - (ii) Notify all potentially liable persons known to the department of the results of the periodic review.
- (b) For an independent remedial action, the department will notify the public of a periodic review report in accordance with WAC 173-340-600(20).
- (6) Determination of whether amendment of the cleanup action plan required.** For an ecology-conducted or an ecology-supervised remedial action, when the department determines that substantial changes in the cleanup action are necessary to protect human health and the environment at the site, a revised cleanup action plan shall be prepared. The department shall provide or require public notice of the draft cleanup action plan in accordance with WAC 173-340-380 and 173-340-600(14).
- (7) Determination of whether future periodic reviews required.** In conducting a periodic review under this section, the department shall determine whether additional reviews are necessary, taking into consideration the factors in subsection (4) of this section. Sites with institutional controls shall remain subject to periodic reviews as long as the institutional controls are required under this chapter.

**WAC 173-340-430 Interim actions.**

**(1) Purpose.** An interim action is distinguished from a cleanup action in that an interim action only partially addresses the cleanup of a site. (Note: An interim action may constitute the cleanup action for a site if the interim action is subsequently shown to comply with WAC 173-340-350 through 173-340-390.) An interim action is:

- (a)** A remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance at a facility;
- (b)** A remedial action that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed; or
- (c)** A remedial action needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study or design of a cleanup action.

Example. A site is identified where oil-based wood preservative has leaked from a tank and is puddled on the ground and is floating on the water table. Runoff from adjacent properties passes through the site. Neighborhood children have been seen on the site. In this case, several interim actions would be appropriate before fully defining the extent of the distribution of hazardous substances at the site and selecting a cleanup action. These interim actions might consist of removing the tank, fencing the site, rerouting runoff, and removing the product puddled on the ground and floating on the water table. Further studies would then determine what additional soil and groundwater cleanup would be needed.

**(2) General requirements.** Interim actions may:

- (a)** Achieve cleanup standards for a portion of the site;
- (b)** Provide a partial cleanup, that is, clean up hazardous substances from all or part of the site, but not achieve cleanup standards; or
- (c)** Provide a partial cleanup of hazardous substances and not achieve cleanup standards, but provide information on how to achieve cleanup standards for a cleanup. For example, demonstration of an unproven cleanup technology.

**(3) Relationship to the cleanup action.**

- (a)** If the cleanup action is known, the interim action shall be consistent with the cleanup action.
- (b)** If the cleanup action is not known, the interim action shall not foreclose reasonable alternatives for the cleanup action. This is not meant to preclude the destruction or removal of hazardous substances.

**(4) Timing.**

- (a)** Interim actions may occur anytime during the cleanup process. Interim actions shall not be used to delay or supplant the cleanup process. An interim action may be done before or in conjunction with a site hazard assessment and hazard ranking. However, sufficient



technical information must be available regarding the facility to ensure the interim action is appropriate and warranted.

- (b) Interim actions shall be followed by additional remedial actions unless compliance with cleanup standards has been confirmed at the site.
- (c) The department shall set appropriate deadlines commensurate with the actions taken for completion of the interim action.
- (5) **Administrative options.** Interim cleanup actions may be conducted under any of the administrative options for remedial action described in WAC 173-340-510
- (6) **Public participation or notification.**

  - (a) For an ecology-conducted or an ecology-supervised remedial action, the department will provide or require public notice of a draft interim action plan prepared under this section in accordance with WAC 173-340-600(18).
  - (b) For an independent remedial action, the department will notify the public of an interim action report in accordance with WAC 173-340-600(20).
- (7) **Submittal requirements.** Unless otherwise directed by the department and except for independent remedial actions, emergency remedial actions, and underground storage tank releases being addressed under WAC 173-340-450, a report shall be prepared before conducting an interim action. Reports prepared under an order or decree shall be submitted to the department for review and approval. Reports for independent remedial actions shall be submitted as required by WAC 173-340-515. Reports shall be of a scope and detail commensurate with the work performed and site-specific characteristics, and shall include, as appropriate:

  - (a) A description of the interim action and how it will meet the criteria identified in subsections (1), (2) and (3) of this section;
  - (b) Information from the applicable subsections of the remedial investigation/feasibility study of WAC 173-340-350 and 173-340-351, including at a minimum:
    - (i) A description of existing site conditions and a summary of all available data related to the interim action; and
    - (ii) Alternative interim actions considered and an explanation why the proposed alternative was selected;
  - (c) Information from the applicable subsections of the design and construction requirements of WAC 173-340-400; and
  - (d) A compliance monitoring plan meeting the applicable requirements of WAC 173-340-410;
  - (e) A health and safety plan meeting the requirements of WAC 173-340-810;
  - (f) An inadvertent discovery plan meeting the requirements in WAC 173-340-815; and

- (g) A sampling and analysis plan meeting the requirements of WAC 173-340-820.
- (8) **Construction.** Construction of the interim action shall be in conformance with WAC 173-340-400(7).

**WAC 173-340-440 Institutional controls.**

- (1) Purpose.** Institutional controls are measures undertaken to limit or prohibit activities that may interfere with the integrity of an interim action or cleanup action or that may result in exposure to hazardous substances at a site. Institutional controls may include:

  - (a)** Physical measures such as fences;
  - (b)** Use restrictions such as limitations on the use of property or resources; or requirements that cleanup action occur if existing structures or pavement are disturbed or removed;
  - (c)** Maintenance requirements for engineered controls such as the inspection and repair of monitoring wells, treatment systems, caps or groundwater barrier systems;
  - (d)** Educational programs such as signs, postings, public notices, health advisories, mailings, and similar measures that educate the public and/or employees about site contamination and ways to limit exposure; and
  - (e)** Financial assurances (see subsection (11) of this section).
- (2) Relationship to engineered controls.** The term institutional controls refers to nonengineered measures while the term engineered controls means containment and/or treatment systems that are designed and constructed to prevent or limit the movement of, or the exposure to, hazardous substances. See the definition of engineered controls in WAC 173-340-200 for examples of engineered controls.
- (3) Applicability.** This section applies to remedial actions being conducted at sites under any of the administrative options for remedial action described in WAC 173-340-510.
- (4) Circumstances required.** Institutional controls shall be required to assure both the continued protection of human health and the environment and the integrity of an interim action or cleanup action in the following circumstances:

  - (a)** The cleanup level is established using Method A or B and hazardous substances remain at the site at concentrations that exceed the applicable cleanup level;
  - (b)** The cleanup level is established using Method C;
  - (c)** An industrial soil cleanup level is established under WAC 173-340-745;
  - (d)** A groundwater cleanup level that exceeds the potable groundwater cleanup level is established using a site-specific risk assessment under WAC 173-340-720 (6)(c) and institutional controls are required under WAC 173-340-720 (6)(c)(iii);
  - (e)** A conditional point of compliance is established as the basis for measuring compliance at the site;
  - (f)** Any time an institutional control is required under WAC 173-340-7490 through 173-340-7494; or

- (g) Where the department determines such controls are required to assure the continued protection of human health and the environment or the integrity of the interim or cleanup action.
- (5) **Minimum requirements.** A cleanup action relying on institutional controls must meet the requirements specified in WAC 173-340-360, just as any other cleanup action. To ensure a cleanup action relying on institutional controls is protective, institutional controls should demonstrably reduce risks. [This demonstration should be based on a quantitative, scientific analysis where appropriate.](#)
- (6) **Requirement for primary reliance.** As specified in WAC 173-340-360(3)(a)(vii), a cleanup action must not rely primarily on institutional controls and monitoring at a site, or portion thereof, if it is technically possible to implement a more permanent cleanup action.
- (7) **Periodic review.** The department shall review compliance with institutional control requirements as part of periodic reviews under WAC 173-340-420.
- (8) **Format.**

  - (a) For properties owned by a person who has been named as a potentially liable person or who has not been named a potentially liable person by the department but meets the criteria in RCW [70A.305.040](#) for being named a potentially liable person, appropriate institutional controls shall be described in a restrictive covenant on the property. The covenant shall be executed by the property owner and recorded with the register of deeds for the county in which the site is located. This restrictive covenant shall run with the land, and be binding on the owner's successors and assigns.
  - (b) For properties owned by a local, state, or federal government entity, a restrictive covenant may not be required if that entity demonstrates to the department that:

    - (i) It does not routinely file with the county recording officer records relating to the type of interest in real property that it has in the site; and
    - (ii) It will implement an effective alternative system to meet the requirements of subsection (9) of this section.

The department shall require the government entity to implement the alternative system as part of the cleanup action plan. If a government entity meets these criteria, and if it subsequently transfers its ownership in any portion of the property, then the government entity must file a restrictive covenant upon transfer if any of the conditions in subsection (4) of this section still exist.
  - (c) For properties containing hazardous substances where the owner does not meet the criteria in RCW [70A.305.040](#) for being a potentially liable person, the department may approve cleanup actions that include restrictive covenants or other legal and/or administrative mechanisms. The use of legal or administrative mechanisms that do not include restrictive covenants is intended to apply to situations where the release has affected properties near the source of the release not owned by a person potentially

liable under the act. A potentially liable person must make a good faith effort to obtain a restrictive covenant before using other legal or administrative mechanisms. Examples of such mechanisms include zoning overlays, placing notices in local zoning or building department records or state lands records, public notices and educational mailings.

- (9) Restrictive covenants.** Where required, the restrictive covenant shall:
- (a)** Prohibit activities on the site that may interfere with a cleanup action, operation and maintenance, monitoring, or other measures necessary to assure the integrity of the cleanup action and continued protection of human health and the environment;
  - (b)** Prohibit activities that may result in the release of a hazardous substance that was contained as a part of the cleanup action;
  - (c)** Require notice to the department of the owner's intent to convey any interest in the site. No conveyance of title, easement, lease, or other interest in the property shall be consummated by the property owner without adequate and complete provision for the continued operation, maintenance and monitoring of the cleanup action, and for continued compliance with this subsection;
  - (d)** Require the land owner to restrict leases to uses and activities consistent with the restrictive covenant and notify all lessees of the restrictions on the use of the property. This requirement applies only to restrictive covenants imposed after February 1, 1996;
  - (e)** Require the owner to include in any instrument conveying any interest in any portion of the property, notice of the restrictive covenant under this section;
  - (f)** Require notice and approval by the department of any proposal to use the site in a manner that is inconsistent with the restrictive covenant. If the department, after public notice and comment approves the proposed change, the restrictive covenant shall be amended to reflect the change; and
  - (g)** Grant the department and its designated representatives the right to enter the property at reasonable times for the purpose of evaluating compliance with the cleanup action plan and other required plans, including the right to take samples, inspect any remedial actions taken at the site, and to inspect records.
- (10) Local government notification.** Before a restrictive covenant being established under this chapter, the department shall notify and seek comment from a city or county department with land use planning authority for real property subject to the restrictive covenant. Once a restrictive covenant has been executed, this same department shall be notified and sent a copy of the restrictive covenant. For independent cleanups reviewed by the department under WAC 173-340-515 that use restrictive covenants, the person conducting the cleanup shall be responsible for these notifications.
- (11) Financial assurances.** The department shall, as appropriate, require financial assurance mechanisms at sites where the cleanup action selected includes engineered and/or institutional controls. It is presumed that financial assurance mechanisms will be required unless the PLP can demonstrate that sufficient financial resources are available and in place to provide for the long-

term effectiveness of engineered and institutional controls adopted. Financial assurances shall be of sufficient amount to cover all costs associated with the operation and maintenance of the cleanup action, including institutional controls, compliance monitoring, and corrective measures.

- (a) **Mechanisms.** Financial assurance mechanisms may include one or more of the following: A trust fund, a surety bond, a letter of credit, financial test, guarantee, standby trust fund, government bond rating test, government financial test, government guarantee, government fund, or financial assurance mechanisms required under another law (for example, requirements for solid waste landfills or treatment, storage, and disposal facilities) that meets the requirements of this section.
- (b) **Exemption from requirement.** The department shall not require financial assurances if persons conducting the cleanup can demonstrate that requiring financial assurances will result in the PLPs for the site having insufficient funds to conduct the cleanup or being forced into bankruptcy or similar financial hardship.

**(12) Amendment or removal of institutional controls.**

- (a) **Request.** Any person who has an interest in the real property subject to an institutional control may submit a request to the department that the control be amended or removed if the conditions at the site requiring the control under subsection (4) of this section have changed or no longer exist. The request must be in writing.
- (b) **Determination.** If the department determines that the conditions requiring an institutional control under subsection (4) of this section have changed or no longer exist, then the institutional control must be amended or removed.
- (c) **Public participation or notification.**
  - (i) For ecology-conducted or ecology-supervised remedial actions, the department will provide or require public notice of any proposal to amend or remove an institutional control in accordance with WAC 173-340-600(19).
  - (ii) For independent remedial actions, the department will notify the public of any amendment or removal of an institutional control in accordance with WAC 173-340-600(20).

**WAC 173-340-450 Releases from regulated underground storage tank systems.**

**(1) Applicability.**

- (a) Releases.** This section applies only to underground storage tank (UST) systems regulated under chapter [173-360A](#) WAC from which there has been a confirmed release of a regulated substance that may pose a threat to human health or the environment. Under chapter [173-360A](#) WAC, UST system owners and operators and regulated service providers must report such a release to ecology within 24 hours.
- (b) Persons.** This section applies only to UST system owners and operators. UST system owners and operators must comply with the requirements in this section in addition to the other requirements in this chapter.
- (c) Other requirements.** This section does not alter the applicability of requirements in other sections in this chapter.

**(2) Purpose.** Under chapter [173-360A](#) WAC, UST system owners and operators must investigate and clean up confirmed releases in accordance with the requirements of this chapter. This section specifies interim actions that UST system owners and operators must perform immediately or shortly after confirming a release to reduce threats posed by the release, prevent any further release, and characterize the nature and extent of the release. If the interim actions are insufficient to meet the criteria in WAC 173-340-330(5), UST system owners and operators must conduct further remedial action under the state cleanup law to investigate and clean up the release. WAC 173-340-120 provides an overview of the cleanup process under the state cleanup law.

**(3) Enforcement.** UST system owners and operators who violate any requirement in this chapter are subject to enforcement, including civil penalties and orders, under:

- (a)** Chapter [70A.305](#) RCW and this chapter; or
- (b)** Chapter [70A.355](#) RCW and chapter [173-360A](#) WAC.

**(4) Administrative options.** The interim actions specified in this section may be conducted under any of the administrative options for remedial action described in WAC 173-340-510.

**(5) Interim actions.** UST owners and operators must perform the following interim actions after confirming a release.

- (a) Initial response.** Within 24 hours of release confirmation, UST system owners and operators must:
  - (i)** Remove as much of the hazardous substance from the UST system as is possible and necessary to prevent further release to the environment;
  - (ii)** Eliminate or reduce any fire, explosion, or vapor hazards and do so in a manner that minimizes any release of hazardous substances to surface water and groundwater; and





- (vii) Properly manage and dispose any waste materials, including contaminated soil and water, generated as a result of the initial site characterization in accordance with applicable state and federal laws. See WAC 173-340-710.
- (c) **Free product removal.** If free product is discovered at the site, as soon as possible but no later than 30 days after release confirmation, UST system owners and operators must initiate actions to remove the free product while continuing, as necessary, any other actions required under this section. At a minimum, UST system owners and operators must:

  - (i) Conduct free product removal to the maximum extent practicable and in a manner that minimizes the spread of hazardous substances by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site. At a minimum, the free product removal system must be designed and operated to stop the free product migration;
  - (ii) Properly treat, discharge, or dispose of any hazardous substance, water, sludge or any other materials collected in the free product removal process in accordance with applicable state and federal laws. See WAC 173-340-710;
  - (iii) Handle all flammable products safely to prevent fires and explosions;
  - (iv) [Unless otherwise directed by ecology, monitor](#), in accordance with WAC [173-360A-0665\(4\)](#), for the presence of free product at least quarterly; and
  - (v) Unless otherwise directed by ecology, submit to ecology written quarterly progress reports describing the results of the monitoring and free product removal actions. The first report may be combined with the interim action report required under subsection (6) of this section.
- (d) **Continuing obligations.** UST system owners and operators must continue to conduct the following measures to abate hazards at the site while continuing, as necessary, any other remedial action required under the state cleanup law:

  - (i) Monitor and mitigate any additional fire and safety hazards posed by vapors or free product that may have migrated from the UST system into nearby buildings or other structures, such as underground utilities;
  - (ii) Reduce the threat to human health and the environment posed by contaminated soils excavated or discovered as a result of any remedial action; and
  - (iii) Properly manage and dispose any waste materials, including contaminated soil and water, generated as a result of any remedial action in accordance with applicable state and federal laws. See WAC 173-340-710.
- (6) **Interim action report.** Within 90 days of release confirmation, UST system owners and operators must submit an interim action report to ecology about the site and nature of the

release. This report must comply with the submittal requirements in WAC 173-340-840 and include, at a minimum, the following information:

- (a)** A summary of the initial response actions required under subsection (5)(a) of this section, and any resulting information and data;
- (b)** The results of the initial site characterization required under subsection (5)(b) of this section, and any other investigations conducted at the site, including:
  - (i)** The source(s) of the releases;
  - (ii)** An explanation of how the releases occurred;
  - (iii)** The hazardous substances released, and the estimated quantity of hazardous substances released;
  - (iv)** The media contaminated by those releases and, to the extent known, the nature and extent of contamination within those media, and sample locations.
    - (A)** If groundwater has not been tested, UST system owners and operators must include a demonstration that the release does not pose a threat to groundwater.
    - (B)** If no potential vapor intrusion pathways have been identified, UST system owners and operators must include a demonstration that there is no potential for vapors from contaminated soil or groundwater to enter buildings, utility vaults, or other structures;
  - (v)** The results of the free product investigation, if applicable; and
  - (vi)** To the extent known, the pathways of exposure at the site and the human or ecological receptors affected by the releases;
- (c)** The physical characteristics of the site, including:
  - (i)** The location of tax parcels, property boundaries, right-of-ways, and above and below-ground structures;
  - (ii)** The geology of the site, including subsurface soil conditions;
  - (iii)** The hydrology of the site, including depth to groundwater, direction of groundwater flow, approximate location of wells potentially affected by the release, proximity of the release to and potential for affecting surface water and wetlands, the quality and use of groundwater and surface water;
  - (iv)** The location of underground utilities and other potential conduits for vapor or free product migration; ~~and~~
  - (v)** The population and uses of the site and surrounding area; and
  - (vi)** The proximity of the release to sensitive environments;

- (d) Diagrams and cross-sections of the site, as appropriate, reflecting the information required in (b) and (c) of this subsection;
  - (e) At sites where investigations indicate free product is present, information on the free product removal efforts, including:
    - (i) Name of the person responsible for implementing the free product removal measures;
    - (ii) The estimated quantity, type, and thickness of free product observed or measured in wells, boreholes, and excavations;
    - (iii) The type of free product recovery system used;
    - (iv) If the recovery or monitoring of free product results in any discharges, then:
      - (A) The location of such discharges;
      - (B) The type of treatment applied to, and the effluent quality expected from such discharges; and
      - (C) The steps taken and planned to obtain necessary permits for such discharges; and
    - (v) Disposition of recovered free product and other contaminated materials generated by site investigations and cleanup;
  - (f) A description of any other on-going or completed remedial actions, and the results of such actions;
  - (g) A description of any planned remedial actions;
  - (h) The type of mechanism used to meet the financial responsibility requirements of WAC [173-360A-1045](#)(2)(a), and if the mechanism is an insurance policy, then:
    - (i) Whether a claim has been made on the policy; and
    - (ii) Whether the insurer has accepted or denied the claim; and
  - (i) Any other information required by ecology.
- (7) Further remedial action.** If the interim actions required under this section are insufficient to meet the criteria in WAC 173-340-330(5), UST system owners and operators must conduct further remedial action under the state cleanup law to investigate and clean up the release. WAC 173-340-120 provides an overview of the cleanup process under the state cleanup law.
- (8) Periodic updates on remedial actions.** At least every three years after release confirmation or more frequently as directed by ecology, UST system owners and operators must update the interim action report required under subsection (6) of this section and submit it to ecology unless:
- (a) The site has been removed from the contaminated sites list under WAC 173-340-330;

- (b)** Ecology is conducting remedial actions at the site or is supervising remedial actions at the site under an order or decree; or
- (c)** The site is enrolled in a technical assistance program under WAC 173-340-515(5) or chapter [374-80](#) WAC.

# **Part 5 – Administrative Procedures for Remedial Actions**

**WAC 173-340-500 Determination of status as a potentially liable person.**

- (1) Status letter.** The department shall issue a potentially liable person status letter to any person it believes to be potentially liable as provided for in RCW [70A.305.020](#)(26), unless an emergency requires otherwise. Persons will be notified when the department has credible evidence of their potential liability under RCW [70A.305.040](#) and when the department is ready to proceed with remedial action except for emergencies and initial investigations. The status letter shall be sent by certified mail, return receipt requested, or by personal service.
- (2) Contents of letter.** The status letter shall provide:

  - (a)** The name of the person the department believes to be potentially liable;
  - (b)** A general description of the location of the facility;
  - (c)** The basis for the department's belief that the person has a relationship to the facility;
  - (d)** The basis for the department's belief that a release or threatened release of a hazardous substance has occurred at the facility and that the release or threatened release poses a threat to human health or the environment;
  - (e)** An indication of the department's intentions regarding enforcement or other actions at the facility; and
  - (f)** The names of other persons to whom the department has sent a status letter.
- (3) Opportunity to comment.** Any comments shall be submitted in writing to the department within 30 days from the date of receipt by the potentially liable person of the status letter unless the department provides an extension.
- (4) Determination of status.** If after reviewing any comments submitted, the department concludes that credible evidence supports a finding of potential liability, then the department shall issue a determination of potentially liable person status.
- (5) Voluntary waiver.** Persons may accept status as a potentially liable person at any time through a voluntary waiver of their right to notice and comment.
- (6) Additional potentially liable persons.** The department reserves the right to notify additional potentially liable persons at any time, and as resources permit, will facilitate potentially liable persons' efforts to identify additional potentially liable persons. The department shall notify in writing, all persons who previously received a status letter for the facility whenever additional status letters have been sent.

**WAC 173-340-510 Administrative options for remedial actions.**

At sites where ecology has determined remedial action is necessary under the state cleanup law, it is the responsibility of each and every liable person to conduct remedial action so that the sites are cleaned up well and expeditiously. This section provides an overview of the administrative options for remedial action and the process for initiating remedial action. If there are any inconsistencies between this section and any specifically referenced sections, the referenced section governs.

- (1) Independent remedial action.** A person may investigate or clean up a site independently, without ecology supervision or approval, except as provided under WAC 173-340-515(2).

  - (a) Standards.** When reviewing an independent remedial action, ecology determines whether it complies with the substantive requirements of the state cleanup law. Persons conducting an independent remedial action do so at their own risk. Ecology may require additional remedial action if it determines that such action is necessary under the state cleanup law. See WAC 173-340-515(3).
  - (b) Reports.** Persons conducting independent remedial action must report all investigations, interim actions, and cleanup actions to ecology. Reports must include sufficient information for ecology to determine whether the remedial action meets the substantive requirements of the state cleanup law. See WAC 173-340-515(4).
  - (c) Technical assistance.** Persons planning or conducting independent remedial action may request technical assistance from ecology, including advice on how to investigate and clean up a site and written opinions on whether a planned or completed remedial action meets the substantive requirements of the state cleanup law. Ecology may charge a fee for providing requested technical assistance. PLIA may also provide technical assistance for certain sites under RCW [70A.330.040](#)(7) and chapter [374-80](#) WAC.
- (2) Ecology-supervised remedial action.** Ecology may supervise the investigation or cleanup of a site by a potentially liable person or a prospective purchaser under an order or decree. Such persons are encouraged to initiate discussions and negotiations with ecology and the attorney general that may lead to an agreement with the state of Washington on the remedial action to be conducted at a site. Ecology and the state will only approve of remedial action if it is an ecology-supervised remedial action.

  - (a) Consent decree.** Ecology and the attorney general may require remedial action as part of a settlement agreement with a potentially liable person or a prospective purchaser. A settlement agreement must be entered as a consent decree issued by a court of competent jurisdiction. See RCW [70A.305.040](#)(4) and (5), and WAC 173-340-520.

    - (i) Settlement.** A consent decree may contain a covenant not to sue and provide protection from contribution claims.
    - (ii) Initiation.** Negotiations for a consent decree may be initiated by a potentially liable person, a prospective purchaser, or ecology.

- (b) Agreed order.** Ecology may issue an order requiring remedial action with which a potentially liable person or a prospective purchaser agrees to comply. See RCW [70A.305.020](#)(1), [70A.305.050](#)(1), and [70A.305.040](#)(6) and WAC 173-340-530.

  - (i) No settlement.** An agreed order is not a settlement agreement and does not contain a covenant not to sue or provide protection from contributions claims.
  - (ii) Initiation.** Discussions for an agreed order may be initiated by a potentially liable person, a prospective purchaser, or ecology.
- (c) Enforcement order.** Ecology may issue an enforcement order requiring a potentially liable person to conduct remedial action. See RCW [70A.305.050](#)(1) and WAC 173-340-540.
- (3) Ecology-conducted remedial action.** Ecology may take appropriate remedial action to investigate or clean up a site at any time. Ecology typically conducts remedial action when a potentially liable person cannot be identified or when such persons are technically or financially unable to conduct remedial action. Ecology may seek to recover its remedial action costs from potentially liable persons. Except for emergency actions and initial investigations, ecology will make a reasonable effort to notify potentially liable persons before conducting remedial action. See RCW [70A.305.030](#)(1) and [70A.305.050](#)(3).



**WAC 173-340-515 Independent remedial actions.**

- (1) Purpose.** An independent remedial action is a remedial action conducted without department oversight or approval and not under an order, agreed order or consent decree. This section describes the procedures and requirements for independent remedial actions. See WAC 173-340-545 for additional requirements pertaining to independent remedial actions anticipated to be part of a private right of action.
- (2) Applicability.** Nothing in this chapter shall preclude potentially liable persons from conducting independent remedial actions at sites not in discussions or negotiations for, or under, an order or decree. However, a potentially liable person may not conduct independent remedial actions after commencing discussions or negotiations for an agreed order or consent decree unless:

  - (a)** Such action does not foreclose or preempt the remedial actions under discussion or negotiation and such action does not foreclose the selection of a cleanup action; or
  - (b)** The potentially liable person has provided reasonable notice to the department and the department does not object to such action.
- (3) Standards.**

  - (a)** In reviewing independent remedial actions, the department shall determine whether the remedial actions meet the substantive requirements of the state cleanup law and/or whether further remedial action is necessary at the site. Persons conducting independent remedial actions do so at their own risk, and may be required to take additional remedial actions if the department determines such actions are necessary. In such circumstances, the department reserves all of its rights to take actions authorized by law.
  - (b)** When this chapter requires a consultation with, or an approval or determination by the department, such a consultation, approval or determination is not necessary in order to conduct an independent remedial action. However, independent remedial actions must still meet the substantive requirements of the state cleanup law.
  - (c)** Except for the requirement of a restrictive covenant under WAC 173-340-440, where documents are required under the state cleanup law, the documents prepared need not be the same in title or format; however, the documents must still contain sufficient information to serve the same purpose. The scope and level of detail in these documents may vary from site to site depending on the site-specific conditions and the complexity of the remedial action.
- (4) Reports to the department.**

  - (a) Applicability and timing.**

    - (i) Investigations.** Any person who conducts an independent investigation of a release required to be reported under WAC 173-340-300 must submit a written report to the department within 90 days of the completion of the investigation. For the purposes of this subsection:



assistance is advisory only and not binding on the department. This advice may include written opinions. These written opinions shall be limited to whether the independent remedial actions or proposals for those actions meet the substantive requirements of the state cleanup law and/or whether the department believes further remedial action is necessary at the site.

- (a)** Upon completing the review of an independent remedial action report or proposal that is voluntarily submitted for the department's review and opinion, the department will:

  - (i)** Provide a written opinion regarding the remedial actions performed or proposed at the site;
  - (ii)** Provide a written opinion regarding the remedial actions performed at the site and remove the site from the contaminated sites list if the department has sufficient information to show that the independent remedial actions are appropriate to characterize and address contamination at the site, as specified in WAC 173-340-330(5); or
  - (iii)** Provide a written opinion describing the deficiencies with the remedial action or proposal for a remedial action at the site.
- (b)** It is the department's policy, in conducting reviews under this subsection, to promote independent remedial actions by delisting sites whenever petitions and supporting documents show that the actions taken are appropriate to characterize and address the contamination at the site.
- (c)** The department will notify the public of a written opinion issued under this subsection in accordance with WAC 173-340-600(20).
- (6) Cost of technical consultations.** For information on the payment of remedial action costs, see WAC 173-340-550(6).

**WAC 173-340-520 Consent decrees.**

- (1) Procedures for consent decrees initiated by potentially liable persons.** To request a consent decree a person shall submit a letter to the department and office of the attorney general via certified mail, return receipt requested, or by personal delivery.
- (a) Request.** The letter shall describe, based on available information:
- (i)** The proposed remedial action, including the schedule for the work;
  - (ii)** Information which demonstrates that the settlement will lead to a more expeditious cleanup, be consistent with cleanup standards if the remedial action is a cleanup action, and be consistent with any previous orders;
  - (iii)** The facility, including location and boundaries;
  - (iv)** The environmental problems to be addressed including a description of the releases at the facility and the potential impact of those releases to human health and the environment;
  - (v)** A summary of the relevant historical use or conditions at the facility;
  - (vi)** The date on which the potentially liable person will be ready to submit a detailed proposal;
  - (vii)** Any special scheduling considerations for implementing the remedial actions;
  - (viii)** Names of other persons who the person has reason to believe may be potentially liable persons at the facility; and
  - (ix)** A proposed public participation plan. This proposed plan shall be commensurate with the nature of the proposal and site and shall include the elements listed in WAC 173-340-600(8).
- (b)** The letter may include:
- (i)** A waiver of the procedural requirements of WAC 173-340-500 and acceptance, for purposes of settlement, of potentially liable person status.
  - (ii)** The contents of detailed proposal under (g) of this subsection.
- (c)** A prospective purchaser consent decree is a particular type of consent decree entered into with a person not currently liable for remedial action at the site who proposes to purchase, redevelop, or reuse the site. RCW [70A.305.040](#)(5) contains specific statutory requirements for this type of decree. In addition to the information in (a) and (b) of this subsection, a request for a prospective purchaser consent decree shall include:
- (i)** Identification of all persons proposing to enter into the consent decree and information which demonstrates that those persons are not currently liable for remedial action at the site;



- (h) In addition to the information in (g) of this subsection, the detailed proposal for a prospective purchaser consent decree shall include the following:

  - (i) Information showing a legal commitment to purchase, redevelop or reuse the site;
  - (ii) A detailed description including a plan of the proposed continued use, redevelopment, or reuse of the site, including, if necessary, an updated schedule for purchase, redevelopment or reuse;
  - (iii) Information which demonstrates that the redevelopment or reuse of the site is not likely to contribute to the existing or threatened releases at the site, interfere with remedial actions that may be needed at the site, or increase health risks to persons at or in the vicinity of the site; and
  - (iv) If the requestor does not propose to conduct the entire cleanup of the site, available information about potentially liable persons who are expected to conduct the remainder of the cleanup.
- (i) The department and the office of the attorney general shall determine whether the proposal provides a sufficient basis for negotiations, and shall deliver to the potentially liable person within 60 days following receipt of their proposal a written notice indicating whether or not the proposal is sufficient to proceed with negotiations.
- (j) **Prepayment agreement.** Unless otherwise determined by the department, any person who requests a prospective purchaser agreement and receives a notice accepting the request under (f) of this subsection shall enter into a prepayment agreement with the department consistent with WAC 173-340-550(7) before negotiations will begin.
- (k) **Time limits for negotiations.** The department shall set the time period and starting date for negotiations. The department and the office of the attorney general shall then negotiate with those potentially liable persons who have received a notice under (f) of this subsection that their proposal was sufficient to proceed with negotiations. Negotiations may address one or more phases of remedial action..
- (l) **Enforcement stay.** For consent decrees that are not prospective purchaser agreements, unless an emergency exists, the department will stay any enforcement action under chapter [70A.305](#) RCW, but the duration of such stay shall not exceed 120 days from the date negotiations begin. The department can withdraw from negotiations if it determines that:

  - (i) Reasonable progress is not being made toward a consent decree acceptable to the department; or
  - (ii) The proposal is inappropriate based on new information or changed circumstances.

The department may begin an enforcement action after notifying the potentially liable person, in writing, of its intent to withdraw from negotiations.

- (2) Procedures for consent decrees initiated by the department.** When the department believes that a consent decree will be a more expeditious method to achieve remedial action at a facility, it may initiate the procedures set forth in this subsection by sending a letter to the potentially liable person. The letter shall be sent via certified mail, return receipt requested, or by personal service.
- (a)** The letters may be delivered with potentially liable person status letters issued under WAC 173-340-500. The period for negotiation shall not commence until the 30-day comment period required by WAC 173-340-500 has expired or the person expressly waives the procedural requirements of WAC 173-340-500.
- (b) Contents of letter.** The letter shall:
- (i)** Inform potentially liable person(s) that the department and the attorney general want to begin negotiations which may lead to a consent decree providing for remedial action;
  - (ii)** Propose a draft consent decree and scope of work;
  - (iii)** Define the negotiation process and schedule which shall not exceed 90 days;
  - (iv)** Reference the department's finding under WAC 173-340-500;
  - (v)** Request a written statement of the potentially liable person's willingness to proceed with the negotiation process defined in the letter; and
  - (vi)** Request the names of other persons whom the person has reason to believe may be potentially liable persons at the facility.
- (c)** The letter may request the potentially liable person to respond, in writing, to the proposed draft consent decree and scope of work before beginning the negotiation phase.
- (d) Negotiations.** The department and the office of the attorney general shall negotiate with potentially liable persons who have indicated to the department a willingness to proceed with the negotiations. The negotiation time frame shall begin from the date the potentially liable person receives the letter under (a) of this subsection unless modified by the department. Negotiations may address one or more phases of remedial action.
- (e) Enforcement stay.** Unless an emergency exists, the department will stay any enforcement action under chapter [70A.305](#) RCW, but the duration of the stay shall not exceed 90 days from the date negotiations begin. The department can withdraw from negotiations if it determines that:
- (i)** Reasonable progress is not being made toward a consent decree acceptable to the department; or
  - (ii)** The proposal is inappropriate based on new information or changed circumstances. The department may commence with enforcement action after

notifying the potentially liable person, in writing, of its intent to withdraw from negotiations.

- (f) Deadline extensions.** The department may, at its discretion, extend the deadline for negotiations established in (b) of this subsection, provided the extension does not exceed 30 days.
- (3) Filing a decree.** After satisfying the public comment and hearing requirements, the department shall determine whether the proposed settlement negotiated under subsection (1) or (2) of this section, is more expeditious and consistent with cleanup standards established and in compliance with any order issued by the department relevant to the remedial action. After making the requisite findings, the department shall forward the proposed consent decree with the findings required by RCW [70A.305.040](#)(4), to the office of the attorney general. If agreed to by the office of the attorney general, the consent decree will be filed by that office with the appropriate superior court or the federal court having jurisdiction over the matter.



**WAC 173-340-530 Agreed orders.**

- (1) Purpose.** Agreed orders may be used for all remedial actions. An agreed order means that the potentially liable person agrees to perform remedial actions at the site in accordance with the provisions of the agreed order and that the department will not take additional enforcement action against the potentially liable person to require those remedial actions specified in the agreed order so long as the potentially liable person complies with the provisions of the order. Since an agreed order is not a settlement, an agreed order shall not provide for mixed funding, a covenant not to sue, or protection from claims for contribution. The department may require additional remedial actions should it deem such actions necessary.
- (2) Procedures for agreed orders initiated by a potentially liable person.**

  - (a)** To request an agreed order, a person shall submit a letter to the department based on available information, describing:

    - (i)** The proposed remedial action including a schedule for the work;
    - (ii)** The facility, including location and boundaries;
    - (iii)** The environmental problems to be addressed, including the releases at the facility and the potential impact of those releases to human health and the environment;
    - (iv)** A summary of the relevant historical use or conditions at the facility;
    - (v)** Names of other persons whom the person has reason to believe may be potentially liable persons at the facility; and
    - (vi)** A proposed public participation plan. This proposed plan shall be commensurate with the nature of the proposal and site and shall include, at a minimum, the elements listed in WAC 173-340-600(8).
  - (b)** The letter may include a waiver of the procedural requirements of WAC 173-340-500, and acceptance, for purposes of the agreed order, of potentially liable person status.
  - (c)** Recognizing that the basic steps of the cleanup process may be combined and may vary by site, the information in the request shall be at the level of detail appropriate to the step in the process for which the order is requested. For example, a request for an agreed order for a remedial investigation/feasibility study should generally include the level of information needed for a site hazard assessment, so that the department and the public can evaluate the proposed scope of work and relative priority of the site.
  - (d)** The department may waive part of the letter requirements of (a) of this subsection if the requirements have already been met.
- (3) Department response to PLP-initiated request.** The department shall respond to the request within 60 days, unless the department needs additional time to determine potentially liable person status under WAC 173-340-500. The department may:

  - (a)** Request additional information;



**WAC 173-340-540 Enforcement orders.**

The department may issue an enforcement order requiring remedial action after issuing a notice of potentially liable person status letter under WAC 173-340-500. In emergencies, the notice of potentially liable person status may occur concurrently with the issuance of the order. Unless an emergency requires otherwise, the issuance of a potentially liable person status letter shall precede or take place concurrently with the issuance of an enforcement order. Furthermore, except in an emergency, the department shall issue its determination under WAC 173-340-500(4) before an enforcement order can become effective. Failure to comply with an enforcement order may result in substantial liability for costs and penalties as specified in RCW [70A.305.050](#).

**WAC 173-340-545 Private rights of action.**

- (1) Purpose.** A private right of action is a legal claim authorized by RCW [70A.305.080](#) under which a person may recover costs of remedial action from other persons liable under the act. RCW [70A.305.080](#) limits recovery of remedial action costs to those remedial actions that, when evaluated as a whole, are the substantial equivalent of a department-conducted or department-supervised remedial action. The purpose of this section is to facilitate private rights of action and minimize department staff involvement in these actions by providing guidance to potentially liable persons and the court on what remedial actions the department would consider the substantial equivalent of a department-conducted or department-supervised remedial action. In determining substantial equivalence, the department anticipates the requirements in this section will be evaluated as a whole and that a claim would not be disallowed due to omissions that do not diminish the overall effectiveness of the remedial action.
- (2) Substantial equivalent.** For the purposes of this section, the department considers the following remedial actions to be the substantial equivalent of a department-conducted or department-supervised remedial action.

  - (a)** A remedial action conducted by the department;
  - (b)** A remedial action that has been or is being conducted under an order or decree and the remedial requirements of the order or decree have been satisfied for those portions of the remedial action for which the private right of action is being sought; or
  - (c)** A remedial action that has been conducted as an independent remedial action that includes the following elements:

    - (i)** Information on the site and remedial actions conducted has been reported to the department in accordance with WAC 173-340-300, 173-340-450 and 173-340-515, as applicable;
    - (ii)** The department has not objected to the remedial action being conducted or any such objection has been cured as determined by the court;
    - (iii)** Except for emergency remedial actions, before conducting an interim action or cleanup action, reasonable steps have been taken to provide advance public notice;
    - (iv)** The remedial actions have been conducted substantially equivalent with the technical standards and evaluation criteria described in subsection (4) of this section; and
    - (v)** For facilities where hazardous substances have been disposed of as part of the remedial action, documentation is available indicating where these substances were disposed of and that this disposal was in compliance with applicable state and federal laws. It is not the intent of this provision to require extensive documentation. For example, if the remedial action results in solid wastes being transported offsite for disposal, it would be sufficient to have records indicating

the wastes have been disposed of at a permitted solid waste or hazardous waste landfill.

**(3) Public notice requirements.** This subsection shall be used to determine if reasonable steps have been taken to provide advance public notice under subsection (2)(c)(iii) of this section. These public notice procedures apply only to interim actions or cleanup actions conducted as independent remedial actions after December 25, 1993. The notice may be combined with any notices under another law. For interim actions or cleanup actions conducted as independent remedial actions before December 25, 1993, the department recognizes little or no public notification typically occurred because there were no department-specified requirements other than the reporting requirements in this chapter. For these actions, this chapter contains no other specific public notice requirements or guidance, and the court will need to determine such requirements, if any, on a case-by-case basis. For independent remedial actions consisting of site investigations and studies, it is anticipated that public notice would not normally be done since often these early phases of work are to determine if a release even requires an interim action or cleanup action. For the purposes of this section only, unless the court determines other notice procedures are adequate for the site-specific circumstances, the following constitutes adequate public notice for independent remedial actions and supersedes the requirements in WAC 173-340-600:

- (a)** Except for emergency remedial actions, written notification has been provided at least 15 days before beginning construction of the interim action or cleanup action to the last known address of the following persons:
  - (i)** The department (which shall publish a summary of the notice in the *Contaminated Site Register*);
  - (ii)** The local jurisdictional health department/district;
  - (iii)** The town, city or county with land use jurisdiction;
  - (iv)** The land owners identified by the tax assessor at the time the action is begun for that portion of the facility where the interim action or cleanup action is being conducted; and
  - (v)** Persons potentially liable under RCW [70A.305.040](#) known to the person conducting the interim action or cleanup action. In identifying persons potentially liable under RCW [70A.305.040](#) who are to be noticed under this provision, the person conducting the remedial action need only make a reasonable effort to review information currently readily available. Where the interim action or cleanup action is complex, written notification before beginning detailed design is recommended but not required. For emergency remedial actions, written notice should be provided as soon as practicable;
- (b)** The written notification includes: A brief statement describing the releases being remedied and the interim actions or cleanup actions expected to be conducted; the schedule for these interim actions or cleanup actions; and, for persons potentially liable under RCW [70A.305.040](#) known to the person conducting the interim actions or cleanup

actions, a statement that they could be held liable for the costs of remedial actions being conducted; and

- (c) Posting a sign at the site at a location visible to the general public indicating what interim actions or cleanup actions are being conducted and identifying a person to contact for more information. Except for emergency remedial actions this sign should be posted not later than the beginning of construction of any interim action or cleanup action and should remain posted for the duration of the construction. For emergency remedial actions posting of a sign should be done as soon as practicable;

**(4) Technical standards and evaluation criteria.** This subsection shall be used to determine if the remedial actions have been conducted substantially equivalent with the technical standards and evaluation criteria contained in this chapter. For the purposes of this section, remedial actions shall be deemed to comply with subsection (2)(c)(iv) of this section if they have been conducted substantially equivalent with the technical standards and evaluation criteria contained in the following sections, where applicable. Except for a restrictive covenant under WAC 173-340-440, where documents are required by the following sections, the documents prepared need not be the same in title or format. Other documents can be used in place of the documents specified in these sections as long as sufficient information is included in the record to serve the same purpose. When using the following sections to determine substantial equivalence it should be recognized that there are often many alternative methods for cleanup of a facility that would comply with these provisions. When this chapter requires a consultation with, or an approval or determination by the department, such a consultation, approval or determination is not necessary for remedial actions to meet the substantial equivalence requirement under this section; however, the remedial action must still be conducted substantially equivalent with the substantive requirements of those provisions. In applying these sections, reference should be made to the other applicable sections of this chapter, with particular attention to WAC 173-340-130 (Administrative principles), WAC 173-340-200 (Definitions), and WAC 173-340-210 (Usage).

- (a) WAC 173-340-350 (Remedial investigation);
- (b) WAC 173-340-351 (Feasibility study);
- (c) WAC 173-340-355 (Development of cleanup action alternatives that include remediation levels);
- (d) WAC 173-340-357 (Quantitative risk assessment of cleanup action alternatives);
- (e) WAC 173-340-360 (Cleanup action requirements);
- (f) WAC 173-340-370 (Cleanup action expectations);
- (g) WAC 173-340-380 (Cleanup action plan);
- (h) WAC 173-340-400 (Cleanup action implementation);
- (i) WAC 173-340-410 (Compliance monitoring requirements);
- (j) WAC 173-340-430 (Interim actions);

- (k)** WAC 173-340-440 (Institutional controls);
- (l)** WAC 173-340-450 (Releases from regulated underground storage tank systems);
- (m)** WAC 173-340-700 through 173-340-760 (Cleanup standards); and
- (n)** WAC 173-340-810 through 173-340-850 (General provisions).

**WAC 173-340-550 Payment of remedial action costs.**

- (1) **Policy.** RCW [70A.305.050](#)(3) requires that the state seek to recover the amounts spent by the department for investigative and remedial actions and orders. It is the department's intention to recover those costs which are reasonably attributable to individual sites. Timing of cost recovery for individual sites will be considered on a case-by-case basis, however, the department may demand, and generally requires, payment of costs as they are incurred.
- (2) **Costs.** Each person who is liable under chapter [70A.305](#) RCW is liable for remedial action costs incurred by the department. Remedial action costs are costs reasonably attributable to the site and may include costs of direct activities, support costs of direct activities, and interest charges for delayed payments. The department may send its request for payment to all potentially liable persons who are under an order or decree for the remedial action costs at the site. The department shall charge an hourly rate based on direct staff costs plus support costs. It is the department's intention that the resulting hourly rate charged be less than the hourly rate typically charged by a comparably sized consulting firm providing similar services. The department shall use the following formula for computing hourly rates:

Hourly Rate = DSC + DSC(ASCM) + DSC(PSCM), where:

DSC = Direct Staff Costs defined in (a) of this subsection.

ASCM = Agency Support Cost Multiplier defined in (b) of this subsection.

PSCM = Program Support Cost Multiplier defined in (c) of this subsection.

- (a) Costs of direct activities are direct staff costs and other direct costs. Direct staff costs (DSC) are the costs of hours worked directly on a contaminated site, including salaries, retirement plan benefits, Social Security benefits, health care benefits, leave and holiday benefits, and other benefits required by law to be paid to, or on behalf of, employees. Other direct costs are costs incurred as a direct result of department staff working on a contaminated site including, for example, costs of: Travel related to the site, printing and publishing of documents about the site, purchase or rental of equipment used for the site, and contracted work for the site.
- (b) Agency support costs are the costs of facilities, communications, personnel, fiscal, and other statewide and agency-wide services. The agency support cost multiplier (ASCM) used shall be the agency indirect rate approved by the agency's federal cognizant agency (which, as of July 1, 1993, was the United States Department of the Interior) for each fiscal year.
- (c) Program support costs are the costs of administrative time spent by site managers and other staff who work directly on sites and a portion of the cost of management, clerical, policy, computer, financial, and other support provided by other program staff to site managers and other staff who work directly on sites. Other activities of the toxics cleanup program not included in program support costs include, for example, community relations not related to a specific site, policy development, and a portion of the cost of nonsite management, clerical, policy, computer, financial, and other support



staff. The program support cost multiplier (PSCM) used shall be calculated by dividing actual program support costs by the direct staff costs of all hours charged to site related work. This multiplier shall be evaluated at least biennially and any changes published in at least two publications of the *Contaminated Site Register*. The calculation and source documents used in any revision shall be audited by either the state auditor's office or a private accounting firm. Audit results shall be available for public review. This multiplier shall not exceed 1.0 (one).

- (3) Request for payment.** When the department requests payment of remedial action costs it shall provide an itemized statement documenting the costs incurred.
- (4) Interest charges.** A charge of 12 percent interest (annual percentage rate, compounded monthly) shall accrue on all remedial action costs not paid within 90 days of the billing date, or within another longer time period designated by the department.
- (5) Natural resource damages.** Nothing in this section shall affect the authority of the department and the office of attorney general to recover natural resource damages.
- (6) Independent remedial actions.**

  - (a)** The department may collect, from persons requesting a site-specific technical consultation under WAC 173-340-515, the costs incurred by the department in providing such advice and assistance.
  - (b)** For situations where the department has decided to collect its costs, a refundable deposit of a reasonable amount will be required. The department's hourly costs shall be determined based on the method in subsection (2) of this section.
  - (c)** The department's Toxics Cleanup Program manager or designee may make a discretionary, nonappealable decision on whether a person is eligible for a waiver of fees based on that person's ability to pay.
  - (d)** The department shall waive collection of its costs, where appropriate, in providing technical assistance in support of an appropriate level of public participation or where the department's time in responding to the request is de minimis.
- (7) Prepayment of costs.**

  - (a)** Persons potentially liable under this chapter or seeking a prospective purchaser agreement may request the department's oversight of remedial actions through a prepayment agreement. The purpose of such an agreement is to enable department oversight of remedial actions at lower priority sites. The department shall make a determination that such an agreement is in the public interest. A prepayment agreement requires a person to pay the department's remedial action costs, in advance, allowing the department to increase staff for the unanticipated workload. Agreements may cover one or more facilities. Whether the department can respond favorably to a request for a prepayment agreement will depend, in part, on the department and attorney general receiving authorization for the staffing necessary to implement the agreement. Persons interested in such an agreement are encouraged to contact the

department early on to informally discuss the potential for using such an agreement at a facility.

- (b)** Prepayment agreements do not replace an order or decree but are preliminary to or work in conjunction with such documents. Persons entering into a prepayment agreement shall enter into good faith negotiations on an agreed order or consent decree governing remedial actions at the facility in accordance with the procedures described in WAC 173-340-520(1) or 173-340-530(2). Failure to successfully conclude such negotiations may result in the department withdrawing from the prepayment agreement or initiating enforcement action.

**WAC 173-340-560 Mixed funding.**

- (1) Introduction.** Under RCW [70A.305.190](#)(4)(a)(v), the department may provide public funds from the model toxics control capital account to a potentially liable person for the purpose of assisting with the payment of remedial action costs regardless of when incurred. This assistance can be provided in the form of a loan or a contribution, in cash or in kind. Any funding decision under this section is solely the responsibility of the director.
- (2) Applicability and request.**

  - (a)** Mixed funding shall be provided only to potentially liable persons whom the department has found to be eligible and who have entered into a consent decree with the department under the requirements of this chapter.
  - (b)** The consent decree shall identify remedial action tasks to be addressed by the mixed funding, costs to be borne by the potentially liable person, costs to be borne by the model toxics control capital account and terms of the agreement. In the case of loans, the consent decree shall also define any terms and conditions under which the potentially liable person receiving mixed funding has agreed to reimburse the model toxics control capital account.
  - (c)** The potentially liable person shall submit sufficient documentation to support its request for mixed funding.
- (3) Eligibility and mixed funding criteria.** The director shall make a determination, based upon specific criteria whether a proposal is eligible for funding. The only circumstances under which mixed funding can be approved by the department are when the funding will achieve both:

  - (a)** A substantially more expeditious or enhanced cleanup than would otherwise occur; and
  - (b)** The prevention or mitigation of unfair economic hardship. In considering this criterion the department shall consider the extent to which mixed funding will either:

    - (i)** Prevent or mitigate unfair economic hardship faced by the potentially liable person if the remedial action plan were to be implemented without public funding; or
    - (ii)** Achieve greater fairness with respect to the payment of remedial action costs between the potentially liable person entering into a consent decree with the department and any nonsettling potentially liable persons.
- (4) Funding decision.** The department may have informal discussions on mixed funding. If a potentially liable person is found to be eligible for mixed funding, the director shall make a determination regarding the amount of funding to be provided, if any. This shall be determined at the discretion of the director and is not subject to review. A determination of eligibility is not a funding commitment. Actual funding will depend on the availability of funds.
- (5)** The department may recover the amount of public funding spent on investigations and remedial actions from potentially liable persons who have not entered into a consent decree under this

chapter. For purposes of such cost recovery action, the amount in mixed funding attributed to the site shall be considered as remedial action costs paid by the department.

# **Part 6 – Public Participation and Tribal Engagement**

**WAC 173-340-600 Public notification and participation.**

- (1) Purpose.** Public participation is an integral part of ecology’s responsibilities under chapter 70A.305 RCW, the Model Toxics Control Act. Ecology’s goal is to provide the public with timely information and meaningful opportunities for participation that are commensurate with each site. Ecology will meet this goal through a public participation program that includes:

  - (a)** Site-specific information on ecology’s website;
  - (b)** A *Contaminated Site Register* and, if requested, site-specific electronic alerts of changes to site information; and
  - (c)** For ecology-conducted and ecology-supervised remedial actions, early planning and development of site-specific public participation plans, public notice of proposed actions, and public meetings or hearings.
  
- (2) Public notice.** Whenever public notice of a proposed action is required under this chapter, ecology will provide or require at least the following notice and opportunity to comment.

  - (a) Notification methods.**

    - (i) Website.** Ecology will make the proposed action publicly available on ecology’s website under subsection (5) of this section;
    - (ii) Electronic alert.** If requested, ecology will alert a person electronically of the proposed action’s availability under subsection (6) of this section;
    - (iii) Contaminated Site Register.** Ecology will provide notice of the proposed action’s availability in the *Contaminated Site Register* under subsection (7) of this section.
    - (iv) Persons requesting notice.** Written notice must be sent to persons who have made a timely request of ecology. A request for notice is timely if received before or during the public comment period for the current phase of remedial action at the site. However, the receipt of a request for notice does not require ecology to extend the comment period associated with the notice. Ecology may use an electronic alert under subsection (6) of this section to satisfy this requirement.
    - (v) Persons residing within potentially affected vicinity.** Written notice must be sent to persons residing within the potentially affected vicinity of the proposed action. The potentially affected vicinity includes all property within and contiguous to the site and any other area that ecology determines to be directly affected by the proposed action.
    - (vi) Appropriate news media.** Written notice of the proposed action must be sent to any news media that ecology determines to be appropriate. Ecology may consider how a news medium compares with the newspaper of largest circulation in terms of: Audience reached; timeliness; adequacy in conveying the particular information in the notice; cost; or other relevant factors.



- (4) **Additional methods.** To provide information to the public, ecology may use or require any of the following methods in addition to those specifically required under this chapter:
- (a) Press releases;
  - (b) Fact sheets;
  - (c) Public meetings and transcription of such meetings;
  - (d) Publications;
  - (e) Personal contact by ecology employees;
  - (f) Posting signs at the site;
  - (g) Notice in the *Contaminated Site Register*;
  - (h) Notice through the internet;
  - (i) Any other methods as determined by ecology.
- (5) **Site-specific information on website.** For sites on the contaminated sites list and the no further action sites list, ecology will make at least the following site-specific information publicly available on ecology's website:
- (a) The date ecology or PLIA discovered or received notice of the release or, if this date is not known, the earliest date of administrative activity in ecology's site database;
  - ~~(a)~~(b) The site's current listing and remedial action status identified under WAC 173-340-330;
  - ~~(b)~~(c) The site's current hazard rankings identified under WAC 173-340-320;
  - ~~(c)~~(d) Any initial investigation report prepared under WAC 173-340-310;
  - ~~(d)~~(e) For ecology-conducted or ecology-supervised remedial actions:
    - (i) Any proposed action requiring public notice under this chapter; and
    - (ii) Any final cleanup action plan issued under WAC 173-340-380;
  - ~~(e)~~(f) For independent remedial actions:
    - (i) Any independent investigation, interim action, or cleanup action report required under WAC 173-340-515(4) and received by ecology; and
    - (ii) The results of any ecology review of an independent remedial action, including any written opinion issued by ecology under WAC 173-340-515(5);
  - ~~(f)~~(g) Whether institutional controls are currently required, and any document implementing, amending, or removing an institutional control under WAC 173-340-440;
  - ~~(g)~~(h) Whether periodic reviews are currently required, and any periodic review report prepared under WAC 173-340-420;



- ~~(i)~~ (i) Instructions on how to sign up for the site-specific electronic alerts provided by ecology under subsection (6) of this section; and
  - ~~(j)~~ (j) Any other information ecology considers appropriate for inclusion.
- (6) **Site-specific electronic alerts.** For sites on the contaminated sites list and the no further action sites list, ecology will provide a person, if requested, a site-specific electronic alert when the site information specified in subsection (5) of this section is added or changed on ecology's website.
- (a) **Method.** Ecology will establish the means for providing the site-specific electronic alerts.
  - (b) **Instructions.** Ecology will provide instructions on how to sign up for the site-specific electronic alerts on ecology's website under subsection (5) of this section and in any public notice required under this chapter.
- (7) **Contaminated Site Register.** Ecology will maintain and regularly publish a *Contaminated Site Register*.
- (a) **Publication.** Ecology will establish the method for publishing the *Contaminated Site Register*, which may include making it publicly available on ecology's website, electronically distributing it to interested persons, or any other method deemed appropriate by ecology.
  - (b) **Content.** Ecology will include notice of the following in the *Contaminated Site Register*:
    - (i) The availability of any legislative report required under chapter 70A.305 RCW related to remedial action;
    - (ii) Any rule-making notice requiring publication in the Washington State Register under chapter 34.05 RCW related to remedial action;
    - (iii) The availability of any ecology publication related to remedial action, including any new, revised, or rescinded interpretive or policy statement requiring notice in the Washington State Register under RCW 34.05.230;
    - (iv) Any proposed substantive change to the site hazard assessment and ranking process developed under WAC 173-340-320(2);
    - (v) Any update to ecology's strategic plans or performance assessments required under WAC 173-340-340(1) and (3);
    - (vi) Any additional resource allocation factors specified by the legislature or ecology under WAC 173-340-340(2)(d);
    - (vii) Any proposed model remedy developed under WAC 173-340-390(2);
    - (viii) Any change to the program support cost multiplier calculated under WAC 173-340-550(2)(c);



- (b) **Early planning encouraged.** In order to develop an appropriate plan, ecology or a potentially liable person or prospective purchaser (if submitting a plan to ecology) should engage in an early planning process to assess the public participation needs at the site, including the needs of [likely](#) vulnerable populations and overburdened communities. This process may include identifying and conferring with individuals, community groups, indigenous peoples, local governments, public agencies, or any other organizations that may have an interest in or knowledge of the site.
- (c) **Development.** Ecology will develop the plan, or work with a potentially liable person or prospective purchaser to develop the plan.
- (i) If a plan already exists for the site, ecology will consider whether the existing plan is still appropriate or whether the plan should be amended. For example, a plan originally developed to address a remedial investigation/feasibility study may need to be amended to address implementation phases.
- (ii) Unless otherwise directed by ecology, a potentially liable person or prospective purchaser requesting an agreed order under WAC 173-340-530 or a consent decree under WAC 173-340-520 must submit a proposed plan as part of its request. If a plan already exists for the site, the potentially liable person or prospective purchaser may either resubmit the existing plan with any proposed amendments or submit an entirely new proposed plan. The proposed plan may be revised during the course of discussions on the agreed order or negotiations on the consent decree. The final plan may become part of the agreed order or consent decree.
- (d) **Contents.** A public participation plan must include the following:
- (i) Applicable public notice requirements and how these will be met, including:
- (A) When public notice will occur;
- (B) The length of the comment periods accompanying each notice; and
- (C) The potentially affected vicinity and any other areas to be provided notice, to the extent known;
- (ii) Information repositories. The plan should identify at least one location where the public can review information about the remedial action. Multiple locations may be appropriate;
- (iii) Methods of identifying the public's concerns. Such methods may include interviews, questionnaires, meetings, contacts with community groups or other organizations that have an interest in the site, or establishing citizen advisory groups for sites;
- (iv) Methods of addressing the public's concerns and conveying information to the public. These may include any of the methods listed in subsection (4) of this section;





- (C) Generally describe the remedial action proposed in the proposed agreed order, including institutional controls and permit exemptions authorized under RCW [70A.305.090](#); and
          - (D) Invite the public to comment on the proposed agreed order.
    - (iii) **Comment opportunity.** Ecology will provide the public at least 30 days from the date the notice is issued to comment on a proposed agreed order.
    - (iv) **Public hearing.** Ecology may hold a public meeting or hearing on a proposed agreed order if it determines that it is in the public interest.
  - (d) **Public notice of substantial changes to proposed order.** If ecology and the potentially liable person or prospective purchaser agree to substantial changes to a proposed agreed order, ecology will provide or require additional public notice of the proposed changes in accordance with subsection (2) of this section.
- (12) **Enforcement orders.** Ecology will provide the public with the following notice and comment opportunities when preparing an enforcement order under WAC 173-340-540.
  - (a) **Public participation plan.** Ecology will develop a public participation plan in accordance with subsection (9) of this section.
  - (b) **Public notice of proposed order.** Ecology will provide public notice of a proposed enforcement order in accordance with subsection (2) of this section. The public notice may be consolidated with notice of other documents under this chapter, such as a cleanup action plan, or under other laws.
    - (i) **Timing.** Ecology will provide notice of a proposed enforcement order before or concurrent with the issuance of the order.
      - (A) Except in emergencies, ecology will provide the notice no later than three days after ecology issues the enforcement order.
      - (B) In emergencies, ecology will provide the notice no later than 10 days after ecology issues the enforcement order.
    - (ii) **Contents.** Notice of a proposed enforcement order must briefly:
      - (A) Identify and generally describe the site;
      - (B) Identify the persons who are parties to the enforcement order;
      - (C) Generally describe the terms of the proposed enforcement order, including institutional controls and permit exemptions authorized under RCW [70A.305.090](#); and
      - (D) Invite the public to comment on the proposed enforcement order.
    - (iii) **Comment opportunity.** Ecology will provide the public at least 30 days from the date ecology issues the notice to comment on a proposed enforcement order.

- (c) **Public notice of substantial changes to proposed order.** Ecology may amend the enforcement order based on public comments. If ecology substantially changes the enforcement order, ecology will provide additional public notice of the proposed changes in accordance with subsection (2) of this section.
- (13) **Remedial investigation/feasibility study.** For ecology-conducted and ecology-supervised remedial actions, ecology will require or provide the public with the following notice and comment opportunities during a remedial investigation and/or feasibility study conducted under WAC 173-340-350 and/or 173-340-351.
  - (a) **Public notice of work plan.** For ecology-conducted remedial actions, ecology will provide public notice of a remedial investigation work plan in accordance with subsection (2) of this section. Ecology will provide the public at least 30 days from the date ecology issues the notice to comment on the plan.
  - (b) **Public notice of report.** Ecology will provide or require public notice of a remedial investigation and/or feasibility study report in accordance with subsection (2) of this section. The public notice may be consolidated with public notice of a draft cleanup action plan. When deciding whether to consolidate public notice, ecology will consider the factors in subsection (3) of this section.
    - (i) **Content.** Notice of a remedial investigation and/or feasibility study report must briefly:
      - (A) Describe the site;
      - (B) Describe the remedial investigation and/or feasibility study results;
      - (C) If available, identify ecology’s proposed cleanup action and provide an explanation for its selection; and
      - (D) Invite public comment on the report.
    - (ii) **Comment opportunity.** Ecology will provide the public at least 30 days from the date the notice is issued to comment on a remedial investigation and/or feasibility study report.
- (14) **Selection of cleanup actions.** For ecology-conducted and ecology-supervised remedial actions, ecology will require or provide the public with the following notice and comment opportunities when selecting a cleanup action under WAC 173-340-380.
  - (a) **Public notice of draft cleanup action plan.** When issuing a draft cleanup action plan, ecology will provide or require public notice of the plan in accordance with subsection (2) of this section. The public notice may be consolidated with public notice of a remedial investigation/feasibility study report or a proposed order or decree.
    - (i) **Content.** Notice of a draft cleanup action plan must briefly:
      - (A) Describe the site;





- (v) Identify ecology staff who may be contacted for further information; and
        - (vi) Invite public comment on the proposed interim action.
    - (b) **Comment opportunity.** Ecology will provide the public at least 30 days from the date the notice is issued to comment on a proposed interim action.
- (17) **Removing sites from contaminated sites list.** For ecology-conducted and ecology-supervised remedial actions, ecology will provide public notice before removing a site from the contaminated sites list under WAC 173-340-330. The public notice must be provided in accordance with subsection (2) of this section. Ecology will provide the public at least 30 days from the date ecology issues the notice to comment on the proposed removal from the contaminated sites list.
- (18) **Periodic reviews.** For ecology-conducted and ecology-supervised remedial actions, ecology will provide public notice of a periodic review report prepared under WAC 173-340-420. The public notice must be provided in accordance with subsection (2) of this section. Ecology will provide the public at least 30 days from the date ecology issues the notice to comment on a periodic review.
- (19) **Institutional controls.** For ecology-conducted and ecology-supervised remedial actions, before amending or removing an institutional control required under WAC 173-340-440, ecology will provide or require public notice on the proposal in accordance with subsection (2) of this section. Ecology will provide the public at least thirty days from the date the notice is issued to comment on the proposal.
- (20) **Independent remedial actions.**
  - (a) For independent remedial actions, ecology will notify the public of the following using the methods specified in subsections (5) and (6) of this section:
    - (i) Any change to the site's listing or remedial action status identified under WAC 173-340-330;
    - (ii) Any change to the site's hazard rankings identified under WAC 173-340-320;
    - (iii) Any initial investigation report prepared under WAC 173-340-310;
    - (iv) Any independent investigation, interim action, or cleanup action report required under WAC 173-340-515(4) and received by ecology;
    - (v) The results of any ecology review of an independent remedial action, including any written opinion issued by ecology under WAC 173-340-515(5);
    - (vi) Any periodic review report prepared under WAC 173-340-420; and
    - (vii) Any document implementing, amending, or removing an institutional control under WAC 173-340-440.
  - (b) Ecology will provide notice of the following independent remedial actions in the *Contaminated Site Register* under subsection (7) of this section:

- (i) Any notice of a planned independent interim action or cleanup action submitted to ecology in anticipation of a private right of action under WAC 173-340-545(3)(a); and
  - (ii) Any proposed area-wide groundwater conditional point of compliance under WAC 173-340-720(8)(d)(iii)(D).
- (c) For independent remedial actions, ecology may provide public notice of any proposed action for which public notice is required under this chapter for an ecology-conducted or ecology-supervised remedial action.
- (21) Public participation grants.** RCW [70A.305.180](#)(4) requires funds be allocated for public participation grants to persons, including groups, who may be adversely affected by a release or threatened release of a hazardous substance. Persons interested in applying for such grants are encouraged to contact ecology to learn about available funding, grant application procedures, and deadlines. See chapter [173-321](#) WAC for additional information on public participation grants.
- (22) Other requirements.** The following sections of this chapter specify additional requirements for providing notice or opportunity to comment.
  - (a) WAC 173-340-310(6)(e)(vi) contains focused notice requirements for emergency or interim actions required by ecology as a result of an initial investigation.
  - (b) WAC 173-340-320(2)(b) contains notice and comment requirements for developing and updating the site hazard assessment and ranking process.
  - (c) WAC 173-340-330(9)(a) and 173-340-335(5)(a) contain requirements for making the contaminated sites list and the no further action sites list publicly available.
  - (d) WAC 173-340-340(4)(a) contains requirements for making ecology's strategic plans and performance assessments publicly available.
  - (e) WAC 173-340-390(2)(c) contains notice and comment requirements for developing model remedies.
  - (f) WAC 173-340-440(10) contains local government consultation requirements for proposing institutional controls.
  - (g) WAC 173-340-545(3) contains public notice requirements for private rights of action.
  - (h) WAC 173-340-720(6)(c)(A) contains focused notice and comment requirements for establishing site-specific nonpotable groundwater cleanup levels.
  - (i) WAC 173-340-720(8)(d) contains focused notice and comment requirements for establishing off-property conditional points of compliance.

~~WAC 173-340-610 — Regional citizens' advisory committees.~~

**WAC 173-340-620 Tribal engagement.**

- (1) **Purpose.** Tribal engagement is an integral part of ecology's responsibilities under chapter 70A.305 RCW, the Model Toxics Control Act. Ecology's goal is to provide Indian tribes with timely information, effective communication, continuous opportunities for collaboration and, when necessary, government-to-government consultation, as appropriate for each site.
- (2) **Applicability.** This section applies to ecology-conducted and ecology-supervised remedial actions affecting Indian tribes' rights or interests.
- (3) **Tribal engagement plan.**
  - (a) Ecology will develop a site tribal engagement plan that identifies Indian tribes that may be adversely affected by the site, opportunities for government-to-government collaboration and consultation, and protocols for communication.
  - (b) ~~Ecology encourages early planning and engagement.~~ Ecology will seek to ~~engage~~initiate meaningful engagement with affected Indian tribes before initiating a remedial investigation or an interim action at a site. Ecology will maintain meaningful engagement with Indian tribes throughout the cleanup process.
- (4) **Relationship with public participation.** Engagement of Indian tribes under this section must be in addition to and independent of any public participation process under this chapter or applicable laws.

## **Part 7 - Cleanup Standards**

### What is included in Part 7?

In this rulemaking, Ecology did not change the cleanup standards in Part 7 of the rule. However, Ecology did make the following types of changes to Part 7:

- Minor corrections identified by practitioners since the last rulemaking.
- Changes needed to conform to changes in other Parts of the rule.

To facilitate your review of the limited changes to Part 7, this document lists the changes to the rule instead of showing the changes in the rule text. We are displaying the changes to Part 7 in this manner to make it easier for you to identify and compare them.

Unlike for the other Parts of the rule, this document tracks all changes to Part 7 of the current rule, including both the changes in the proposed rule and the additional changes in the adopted rule. Differences between the proposed and adopted rules are included in a separate table.

You can view the changes in the text of the relevant sections in the Order Typing Service (OTS) text, which is available on our website: <https://ecology.wa.gov/Regulations-Permits/Laws-rules-rulemaking/Rulemaking/WAC-173-340>.

### Differences between Current and Adopted Rules in Part 7

The following table identifies the differences in Part 7 between the current and adopted rules. This table includes the changes Ecology made to the proposed rule, which are also listed separately.

Section or Equation	Change
Universal style changes	
	<del>one</del> <sup>(1)</sup> <del>ten</del> <sup>10</sup> percent <del>fifteen</del> <sup>15</sup> percent <del>twenty</del> <sup>20</sup> percent <del>fifty</del> <sup>50</sup> percent <del>ninety</del> <sup>90</sup> percent <del>ninety-five</del> <sup>95</sup> percent <del>fifteen</del> <sup>15</sup> feet <del>ten</del> <sup>10</sup> times <del>twenty-four</del> <sup>24</sup> hour <del>two</del> <sup>2</sup> liters/day one in <del>one hundred thousand</del> <sup>100,000</sup> one in <del>one million</del> <sup>1,000,000</sup>
Universal word changes	
	<del>Contaminated</del> <sup>Contaminated</sup> Site Register <del>hazardous waste</del> <sup>hazardous waste</sup> site <del>Indian</del> <sup>Indian</sup> tribes <del>mailed</del> <sup>provided</sup>

Section or Equation	Change
Equations	
Equation 720-1	ED = Exposure duration <del>(1.0)</del> (6 years)
Equation 720-3	INH(i) = Inhalation correction <del>fraction</del> factor for petroleum component (i) (use value of 2 for volatile organic compounds and 1 for all other components [unitless])
Equation 730-1	UCF2 = Unit conversion factor (1,000 grams/ <del>kg</del> liter)
Equation 730-2	UCF2 = Unit conversion factor (1,000 grams/ <del>kg</del> liter)
Equation 740-3	<p>ABS = Dermal absorption fraction for petroleum component (i) (unitless). May use chemical-specific values or the following defaults:</p> <ul style="list-style-type: none"> <li>• 0.0005 for volatile petroleum components with vapor <del>press</del>pressure <math>\geq</math> benzene</li> <li>• 0.03 for volatile petroleum components with vapor <del>press</del>pressure <math>&lt;</math> benzene</li> <li>• 0.1 for other petroleum components</li> </ul>
Equation 740-4	<p>ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:</p> <ul style="list-style-type: none"> <li>• 0.01 for inorganic hazardous substances</li> <li>• 0.0005 for volatile organic compounds with vapor <del>press</del>pressure <math>\geq</math> benzene</li> <li>• 0.03 for volatile organic compounds with vapor <del>press</del>pressure <math>&lt;</math> benzene</li> <li>• 0.1 for other organic hazardous substances</li> </ul>
Equation 740-5	<p>ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:</p> <ul style="list-style-type: none"> <li>• 0.01 for inorganic hazardous substances</li> <li>• 0.0005 for volatile organic compounds with vapor <del>press</del>pressure <math>\geq</math> benzene</li> <li>• 0.03 for volatile organic compounds with vapor <del>press</del>pressure <math>&lt;</math> benzene and for mixtures of dioxins and/or furans</li> <li>• 0.1 for other organic hazardous substances</li> </ul>
Equation 745-3	<p>ABS = Dermal absorption fraction for petroleum component (i) (unitless). May use chemical-specific values or the following defaults:</p> <ul style="list-style-type: none"> <li>• 0.0005 for volatile petroleum components with vapor <del>press</del>pressure <math>\geq</math> benzene</li> <li>• 0.03 for volatile petroleum components with vapor <del>press</del>pressure <math>&lt;</math> benzene</li> <li>• 0.1 for other petroleum components</li> </ul>

Section or Equation	Change
Equation 745-4	<p>ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:</p> <ul style="list-style-type: none"> <li>• 0.01 for inorganic hazardous substances</li> <li>• 0.0005 for volatile organic compounds with vapor <del>press</del>pressure <math>\geq</math> benzene</li> <li>• 0.03 for volatile organic compounds with vapor <del>press</del>pressure <math>&lt;</math> benzene</li> <li>• 0.1 for other organic hazardous substances</li> </ul>
Equation 745-5	<p>ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:</p> <ul style="list-style-type: none"> <li>• 0.01 for inorganic hazardous substances</li> <li>• 0.0005 for volatile organic compounds with vapor <del>press</del>pressure <math>\geq</math> benzene</li> <li>• 0.03 for volatile organic compounds <del>substances</del> with vapor <del>press</del>pressure <math>&lt;</math> benzene and for mixtures of dioxins and/or furans</li> <li>• 0.1 for other organic hazardous substances</li> </ul>
Equation 747-2	<p>Koc = Soil organic carbon-water partitioning coefficient (<del>m/g</del>)(L/kg). See (c)(i) of this subsection.</p>
Sections	
173-340-700(4)(a)	<del>This part</del> Part 7 of this chapter
173-340-700(4)(b)	Other parts of this <del>rule</del> chapter
173-340-700(6)(a)	RCW <del>70.105D.030(2)(d)</del> 70A.305.030(2)(e)
173-340-700(8)(b)(i), (ii)(C), and (ii)(D)	<del>under Method 6 (see WAC 173-340-830 (3)(a)(vi))</del> in the " <i>Analytical Methods for Petroleum Hydrocarbons</i> ," publication number 97-602, dated June 1997
173-340-702(10)	When evaluating cleanup actions performed under the federal cleanup law, the department shall consider WAC 173-340-350, <a href="#">173-340-351</a> , 173-340-355, 173-340-357, 173-340-360, <a href="#">173-340-370</a> , 173-340-410, 173-340-420, 173-340-440, 173-340-450, 173-340-700 through 173-340-760, and 173-340-830 to be legally applicable requirements under Section 121(d) of the <del>F</del> ederal <del>C</del> leanup <del>L</del> aw.
173-340-702(11)	<del>WAC 173-340-700 through 173-340-760</del> Part 7 of this chapter



Section or Equation	Change
173-340-702(12)	<p>(a) For cleanup actions conducted by the department, or under an order or decree, the department shall determine the cleanup level that applies to a release based on the rules <a href="#">and analytical methods</a> in effect under this chapter at the time the department issues a final cleanup action plan for that release.</p> <p>(b) In reviewing the adequacy of independent remedial actions, the department shall determine the cleanup level that applies to a release based on the rules <a href="#">and analytical methods</a> in effect at the time the final cleanup action for that release began or in effect when the department reviews the cleanup action, whichever is less stringent.</p> <p>(c) A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provisions in this chapter on cleanup levels <a href="#">or subsequent availability of more sensitive analytical methods</a>, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment.</p> <p>(d) Nothing in this subsection constitutes a settlement or release of liability under the Model Toxics Control Act.</p>
173-340-702(15)	RCW <del>70.105D.040(4)(e)</del> <a href="#">70A.305.040(4)(c)</a>
173-340-704(2)(c)	WAC 173-340-7490 through 173-340- <del>7493</del> <a href="#">7494</a>
173-340-710(7)(d)	... In addition, a remedial investigation/feasibility study conducted under WAC 173-340-350 <a href="#">and 173-340-351</a> shall also comply with the cleanup study plan requirements under chapter 173-204 WAC. ...
173-340-710(9)(b), (d)(i), and (d)(iii)	RCW <del>70.105D.090</del> <a href="#">70A.305.090</a>
173-340-710(9)(b)	<p>... This exemption applies to the following laws:</p> <p>(i) Chapter <del>70.94</del><a href="#">70A.15</a> RCW;</p> <p>(ii) Chapter <del>70.95</del><a href="#">70A.205</a> RCW;</p> <p>(iii) Chapter <del>70.105</del><a href="#">70A.300</a> RCW;</p> <p>(iv) Chapter <del>75.20</del><a href="#">77.55</a> RCW;</p> <p>(v) Chapter 90.48 RCW;</p> <p>(vi) Chapter 90.58 RCW; and</p> <p>(vii) Any laws requiring or authorizing local government permits or approvals for the remedial action.</p>
173-340-730(2)(b)(i)(B)	Water quality criteria based on the protection of aquatic organisms (acute and chronic criteria) and human health published under section 304 of the Clean Water Act; <del>and</del> <a href="#">and</a>
173-340-747(1)	<p>... (see WAC 173-340-740 (3)(b)(iii)(A)) ...</p> <p>... (see WAC 173-340-745 (5)(b)(iii)(A)).</p>

Section or Equation	Change
173-340-745(3)(b)(iii)	WAC 173-340-7490 through 173-340- <del>7493</del> <a href="#">7494</a>
173-340-7490(1)(a)(ii)	Characterizing <del>existing or potential</del> threats to terrestrial plants or animals exposed to hazardous substances in soil; and
173-340-7490(1)(b)	WAC 173-340-350( <del>7)(c)(iii)(F)(H)</del> <a href="#">(6)(i)</a>
173-340-7490(1)(c)	These procedures are not intended to be used to evaluate <del>potential</del> threats to ecological receptors in sediments, surface water, or wetlands.
173-340-7490(5)	The department may require additional measures to evaluate <del>potential</del> threats to terrestrial ecological receptors notwithstanding the provisions in this and the following sections, when based upon a site-specific review, the department determines that such measures are necessary to protect the environment.
173-340-7493(1)(d)(ii)	A simplified terrestrial ecological evaluation may be conducted under WAC 173-340-7492 because this evaluation will adequately identify and address any <del>existing or potential</del> threats to ecological receptors.
173-340-7493(2)(a)(i)	WAC 173-340- <del>708</del> <a href="#">703</a> (2)(b).
173-340-7493(2)(b)	The following is an example of a site-specific issue developed in this step: Is dieldrin contamination a <del>potential</del> threat to reproduction in birds feeding on invertebrates and ingesting soil at the site? If so, what measures will eliminate any significant adverse effects?
173-340-7493(3)(b)(i)	... For issues where <del>existing or potential</del> threats to plant life are a concern, the test described in <i>Early Seedling Growth Protocol for Soil Toxicity Screening</i> . Ecology Publication No. 96-324 may be used. ...
173-340-750(3)(c)(i)	The inhalation absorption <del>percentage</del> <a href="#">fraction</a> may be modified if the requirements of WAC 173-340-702 (14), (15), (16) and WAC 173-340-708(10) are met;
173-340-750(6)	Points of compliance. Cleanup levels established under this section shall be attained in the ambient ( <a href="#">outdoor</a> ) air <a href="#">and air within any building, utility vault, manhole or other structure large enough for a person to fit into,</a> throughout the site. For sites determined to be industrial sites under the criteria in WAC 173-340-745, the department may approve a conditional point of compliance not to exceed the property boundary. A conditional point of compliance shall not be approved if use of a conditional point of compliance would pose a threat to human health or the environment.

### Differences between Proposed and Adopted Rules in Part 7

The following table identifies the differences in Part 7 between the proposed and adopted rules. These changes are also identified in the table above, which shows the differences between the current and adopted rules.

Section	Change
173-340-702(12)	<p>(a) For cleanup actions conducted by the department, or under an order or decree, the department shall determine the cleanup level that applies to a release based on the rules <a href="#">and analytical methods</a> in effect under this chapter at the time the department issues a final cleanup action plan for that release.</p> <p>(b) In reviewing the adequacy of independent remedial actions, the department shall determine the cleanup level that applies to a release based on the rules <a href="#">and analytical methods</a> in effect at the time the final cleanup action for that release began or in effect when the department reviews the cleanup action, whichever is less stringent.</p> <p>(c) A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provisions in this chapter on cleanup levels <a href="#">or subsequent availability of more sensitive analytical methods</a>, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment.</p> <p>(d) Nothing in this subsection constitutes a settlement or release of liability under the Model Toxics Control Act.</p>

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## **Part 8 – General Provisions**

**WAC 173-340-810 Worker health and safety.**

- (1) General provisions.** Requirements under the Occupational Safety and Health Act of 1970, as amended ([29 U.S.C. Sec. 651](#) et seq.) and the Washington Industrial Safety and Health Act (chapter [49.17](#) RCW), and regulations promulgated pursuant thereto shall be applicable to remedial actions taken under this chapter. These requirements are subject to enforcement by the designated federal and state agencies. All governmental agencies and private employers are directly responsible for the safety and health of their own employees and compliance with those requirements. Actions taken by the department under this chapter do not constitute an exercise of statutory authority within the meaning of section (4)(b)(1) of the Occupational Safety and Health Act.
- (2) Health and safety plan.** Persons responsible for undertaking remedial actions under this chapter shall prepare a health and safety plan when required by chapter [296-843](#) WAC. Plans prepared under an order or decree shall be submitted for the department's review and comment. The health and safety plan must be consistent with chapter [49.17](#) RCW and regulations adopted under that authority.

**WAC 173-340-815 Cultural resource protection.**

- (1) Purpose.** This section specifies requirements that are intended to avoid, minimize, or mitigate adverse effects from remedial actions on archaeological and historic archaeological sites, historic buildings and structures, traditional cultural places, sacred sites, and other cultural resources.
- (2) Applicable laws.** Remedial actions must comply with applicable state and federal laws regarding cultural resource protection, including:

  - (a)** The National Historic Preservation Act of 1966, as amended ([54 U.S.C. 300101 et seq.](#));
  - (b)** The Archaeological and Historic Preservation Act of 1974, as amended ([54 U.S.C. 312501 et seq.](#));
  - (c)** The Archaeological Resource Protection Act of 1979, as amended ([16 U.S.C 470aa et seq.](#));
  - (d)** The Native American Graves Protection and Repatriation Act of 1990, as amended ([25 U.S.C. 3001 et seq.](#));
  - (e)** Chapter [27.53](#) RCW, Archaeological sites and resources;
  - (f)** Chapter [27.44](#) RCW, Indian graves and records;
  - (g)** Chapter [68.50](#) RCW, Human remains;
  - (h)** Chapter [68.60](#) RCW, Abandoned and historic cemeteries and historic graves; and
  - (i)** Chapter [43.21C](#) RCW, State Environmental Policy Act, and chapter [197-11](#) WAC, SEPA rules.
- (3) Consultations and inadvertent discovery plans.**

  - (a) Applicability.** The requirements in this subsection apply to:

    - (i)** Ecology-conducted remedial actions, except initial investigations;
    - (ii)** Ecology-supervised remedial actions; and
    - (iii)** Ecology-funded independent remedial actions.
  - (b) Requirements.** [For remedial actions identified under \(a\) of this subsection, ecology will do the following](#) ~~Before~~ before any person conducts a field activity capable of affecting a cultural resource, ~~if encountered, ecology will:~~

    - (i)** Consult with the department of archaeology and historic preservation and affected Indian tribes on the potential effects of planned remedial actions on cultural resources at the site, unless the remedial action is subject to Section 106 review under the National Historic Preservation Act of 1966, as amended ([54 U.S.C. 300101 et seq.](#)). Based on the consultations, ecology may require the development and implementation of a cultural resources work plan, such as a

survey or monitoring plan, to identify cultural resources and to avoid, minimize, or mitigate adverse impacts to cultural resources at the site; and

- (ii)** Prepare or require an inadvertent discovery plan for the site.
  - (A)** The inadvertent discovery plan must be prepared using the applicable form provided by ecology or an equivalent document that includes the same or more comprehensive information.
  - (B)** For ecology-supervised remedial actions, ecology may require submittal of the inadvertent discovery plan for its review.
  - (C)** The inadvertent discovery plan must be readily available during all remedial actions at the site. Persons conducting remedial actions at the site must be familiar with the contents and location of the plan.
  - (D)** The inadvertent discovery plan must be updated as needed to reflect the discovery of cultural resources.



**WAC 173-340-830 Sampling and analysis procedures.**

- (1) Purpose.** This section specifies requirements for sampling and analysis activities conducted as part of a remedial action. These activities include sample collection, handling, preservation, transportation, holding time, preparation, laboratory analysis, method detection limits, practical quantitation limits, quality assurance, quality control, data reporting, and other technical requirements and specifications.
- (2) Applicability.** All sampling and analysis activities conducted as part of a remedial action must comply with the requirements in this section and, for sites where there is a release or threatened release to sediment, the requirements in chapter [173-204](#) WAC.
- (3) Plans.** All sampling and analysis must be conducted in accordance with a sampling and analysis plan prepared under WAC 173-340-820.
- (4) Methods.**

  - (a)** All sampling and analysis must be conducted in accordance with an ecology-approved method or, if ecology has not approved an applicable method, a standard method or procedure such as those specified by the American Society for Testing of Materials, when available.

    - (i)** Ecology will maintain a list of ecology-approved methods and make the list publicly available on ecology's website.
    - (ii)** Ecology will provide notice in the *Contaminated Site Register* when ecology adds or removes a method from the list of ecology-approved methods.
    - (iii)** Ecology will maintain a record of its decisions to add or remove a method from the list of ecology-approved methods.
    - (iv)** Any person may propose another method for ecology review and approval.
  - (b)** The methods used to collect, handle, and analyze samples must be appropriate for the site, the media being analyzed, the hazardous substances being analyzed for, and the anticipated use of the data.
  - (c)** Ecology may require or approve modifications to a method identified under (a) of this subsection to provide lower quantitation limits, improved accuracy, greater precision, or to address the factors in (b) of this subsection.
  - (d)** Ecology may require an analysis to be conducted by more than one method in order to provide higher data quality. For example, ecology may require that different separation and detection techniques be used to verify the presence of a hazardous substance (qualification) and determine the concentration of the hazardous substance (quantitation).
  - (e)** If ecology has approved more than one method with a practical quantitation limit less than the cleanup level, any of those methods may be used. When selecting a method in

these situations, consider confidence in the data, analytical costs, quality assurance, and analysis efficiencies.

**(5) Laboratories.**

- (a)** All hazardous substance analyses must be conducted by a laboratory accredited under chapter [173-50](#) WAC, unless otherwise approved by ecology.
- (b)** Laboratories must achieve the lowest practical quantitation limits consistent with the selected method and WAC 173-340-707.

**(6) Petroleum testing.** The minimum testing requirements for petroleum releases are identified in Table 830-1.

**WAC 173-340-860      Endangerment.**

In the event that the department determines that any activity being performed at a site is creating or has the potential to create a danger to human health or the environment, the department may direct such activities to cease for such period of time as it deems necessary to abate the danger.