

Process Sections: Sections 100 – 600 & 800’s Summary of Changes

Section 120 Overview & Section 140 Deadlines

- Eliminated reference to biennial report (eliminated by legislature in 2007).

Section 200 Definitions and Section 210 Usage

- Numerous definitions added/amended to reflect changes in other parts of the rule and to clarify/update several terms. Several definitions also moved here from other Sections.

Affirmative obligations	Bioconcentration factor/bioaccumulation factor
Biomarker	Carcinogen
Contingent remedial action	Contiguous undeveloped land
Department-supervised remedial actions	Environmental covenant
Especially valuable habitat	Gastrointestinal absorption fraction
Indicator hazardous substances	Institutional controls
Mail	MCLG (deleted)
PAHs (Carcinogenic)	Periodic Review
Pilot study	Routine cleanup action (deleted)
Sediment	Sufficiently protective
Vapor	Volatile hazardous substance
Voluntary cleanup program	Wetlands

Achieve (Section 210)

Section 300 Site Discovery

- Exemption from reporting added for certain areawide contamination sites and asphalt pavement.

Section 310 Initial Investigation

- Added description of contents of initial investigation.
- Added option for deferred listing of a site.

Section 320 Site Hazard Assessment

- Statement added that Site Hazard Assessments are not typically conducted for voluntary cleanup program sites.

Section 330 Hazard Ranking

- Reference to biennial report and MTCA Science Advisory Board eliminated as a result of 2007 & 2009 legislation.
- Landfill regulation reference updated; delisting option expanded to industrial landfills.
- Sites can’t be removed from list until public comment complete.

Section 340 Biennial Report

- Section deleted as a result of 2007 legislation.

*NOTE: NOTE: Language proposed to be deleted is shown in ~~blue with a strikethrough~~, proposed new language is shown in red and underlined. Purple colored language completely replaces existing language and to facilitate review, does not show strikethrough of existing language or underlining of new language.*

Section 350 Remedial Investigation/Feasibility Study (RI/FS)

- Cross-reference added to submittal requirements in Section 840.
- RI/FS for existing and proposed Superfund sites must comply with federal requirements (in addition to MTCA).
- Added reference to sediment rule.
- Clarification that the geographic extent of study may need to extend off-property.
- Added provision encouraging expedited site assessments.
- Several additions/modifications to Remedial Investigation contents:
  - Conceptual site model
  - Sediment rule requirements referenced
  - Soils classified using unified soil classification system (ASTM D2487)
  - Groundwater characterization includes vertical as well as horizontal components
  - Vapor migration (reference to new Sections)
  - Terrestrial ecological evaluations
  - Identification of applicable State and Federal Laws
  - Identification of preliminary cleanup levels
- Added detailed step by step description and illustration of the process for identifying, screening and analyzing alternatives in the feasibility study.
- Added description of content of feasibility study.
- Added requirement for managing materials generated by RI/FS.

Section 355 Remediation Levels

- Several editorial changes, no substantive changes.

Section 357 Risk Assessment

- Several editorial changes, no substantive changes.

Section 360 Remedy Selection

- Added compiled list of requirements for sites where groundwater isn't restored.
- Removed requirement for "quantitative scientific analysis" of institutional controls.
- Modified disproportionate-cost test to clarify that incremental costs must be "substantially" higher than incremental benefits to be disproportionate when comparing two alternatives. This reflects how this test is being applied at sites under the current rule.
- Added a statement that the expectations in Section 370 need to be considered when selecting a remedy.
- Added discussion of what to include in a cost estimate and the parameters for a rate of return and inflation rate when used in a present worth analysis.
- Added a factor that compatibility of the remedy with the land use plan be considered.
- Added climate change as a factor that needs to be considered when selecting a remedy. Climate change is considered in two ways—sea level rise and greenhouse gas emissions.

Section 380 Cleanup Action Plan

- To facilitate public review, added requirement that Cleanup Action Plan identify when the default risk assessment assumptions are changed.

Section 400 Cleanup Action

- Added cross-reference to submittal requirements in Section 840.
- Modified provision addressing managing materials generated during cleanup to include contaminated soil and water.

Section 420 Periodic Reviews

This section and Section 440 have been substantially revised to reflect changes in terminology and procedures required by the uniform environmental covenants act (UECA), passed in 2007. Many changes reflect current practice. These changes are intended to strengthen the effectiveness of periodic reviews and institutional controls to insure remedies remain protective of human health over the long term. Major changes include:

- Changed criteria for when Ecology is required to conduct a periodic review.
- Timing of periodic reviews changed.
- Added contents of periodic review.
- Changed criteria for when a periodic review requires follow-up action by Ecology.
- Added requirement for public involvement before accepting EPA reviews.
- Added cross-reference to Section 550 for cost recovery.

Section 440 Institutional Controls

- Incorporated concept of “activity and use limitations” and “affirmative obligations,” new terms used in UECA.
- Modified to authorize the use of institutional controls at any stage of the cleanup process, not just cleanup actions, consistent with UECA.
- Expanded alternative mechanisms for publically-owned real property interests to include public street and utility easements and rights of way.
- The contents of an environmental covenant have been substantially revised, reflecting UECA requirements and needed clarifications from experience.
- Procedures for filing an environmental covenant have been revised to reflect UECA and current practice.
- The local government notification requirements are changed to reflect new requirements in UECA.
- The presumption changed to focus financial assurance on sites with substantial maintenance requirements.
- The exemption based on sufficient resources has been replaced with a performance standard where this needs to be demonstrated each year.
- The method for costing out the amount of financial assurance and the requirements for the various financial assurance mechanisms have been more explicitly spelled out.
- A provision has been added providing for recovery of costs of implementing institutional controls.
- A provision has been added clarifying that pre-existing, nonconforming covenants are still valid and enforceable.

Section 450 Underground Storage Tank (UST) Releases

- Under consideration: Deletion of this Section and replacement with revised language in the UST rule. The revisions would address several key issues that have emerged at UST sites including:
  - Well installation criteria for confirmed releases.
  - Criteria for when an RI/FS must be conducted.
  - Deadlines for conducting an RI/FS.

Section 515 Independent Remedial Actions

- Extensive changes to VCP requirements, reflecting current practice for initial response, reviews, effect of response, rescinding opinions, terminating contracts and removing sites from list.

Section 545 Private Right of Action

- Clarified that the 3 year clock for private right of action doesn't get triggered by an interim action. (Moses Lake vs. United States)
- Additional changes may be forthcoming as a result of Taliesen vs. Razore decision.

Section 550 Cost Recovery

- Several clarifications to billing rate calculations.
- Changed timeframe from 30 to 90 days for when interest begins to accrue on unpaid bills. This is in response to a State Auditor audit finding.
- Upfront deposit for Ecology reviews under the voluntary cleanup program changed from mandatory deposit, to at Ecology's discretion, reflecting current practice.

Section 600 Public Notice and Participation

- E-mail added as acceptable notification method.
- Public participation plan required for all sites under an order, agreed order or decree, not just ranked sites, reflecting current practice.
- Ecology must "consult with" local government on proposed institutional controls. Reflects new requirement added under the uniform environmental covenants act.
- References to biennial report and regional citizen advisory committees deleted, reflecting statutory changes.
- Citizen technical advisor deleted. This position has never been established.

Section 610 Regional Citizen Advisory Committees

- Section deleted as a result of 2001 legislation.

Section 800

- Changes to allow request for property access to be made through the property owner's authorized representative, such as their consultant or legal counsel.
- Changed to allow a request for property access via e-mail, as is common practice at sites.
- Added requirement that VCP sites must allow Ecology access to verify investigations and cleanup work.
- Access to site information changed to conform to public disclosure laws.

Section 830

- Updated analytical methods, including adding air toxics methods.

Section 840

- Added recognition of role of licensed geologists, reflecting legislation passed in 2000.
- Added a description of what information is required when reporting monitoring results.
- Added survey datum and measurement accuracy standards.

**WAC 173-340-100 Purpose.** This chapter is promulgated under the Model Toxics Control Act. It establishes administrative processes and standards to identify, investigate, and clean up facilities where hazardous substances have come to be located. It defines the role of the department and encourages public involvement in decision making at these facilities.

The goal of this chapter is to implement chapter 70.105D RCW. This chapter provides a workable process to accomplish effective and expeditious cleanups in a manner that protects human health and the environment. 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 shall apply to all facilities 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, the department may require or take those actions necessary to investigate and remedy these releases.

(2) Nothing herein shall be construed to diminish the department's 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. The department 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 facility after actions have been completed under other applicable laws or regulations, the department may apply this chapter to protect human health or the environment.

**WAC 173-340-120 Overview.**

(1) **Purpose.** This section provides an overview of the cleanup process that typically will occur at a site where a release of a hazardous substance has been discovered with an emphasis on sites being cleaned up under order or consent decree. If there are any inconsistencies between this section and any specifically referenced sections, the referenced section shall govern.

(2) **Site discovery.** Site discovery includes:

(a) **Release reporting.** An owner or operator who knows of or discovers a release of a hazardous substance due to past activities must report the release to the department as described in WAC 173-340-300. Most current releases of hazardous substances must be reported to the department 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 by chapter 70.105D RCW.

(b) **Initial investigation.** Within ninety days of learning of a hazardous substance release, the department will conduct an initial investigation of the site under WAC 173-340-310. For sites that may need further remedial action, the department will send an early notice letter to the owner, operator, and other potentially liable persons known to the department, informing them of the department's decision.

(3) **Site priorities.** Sites are prioritized for further remedial action by the following process:

(a) **Site hazard assessment.** Based on the results of the initial investigation, a site hazard assessment will be performed if necessary, as described in WAC 173-340-320. The purpose of the site hazard assessment is to gather information to confirm whether a release has occurred and to enable the department to evaluate the relative potential hazard posed by the release. If the department decides that no further action is required, it will notify the public of that decision through the *Site Register*.

(b) **Hazardous sites list.** The department will maintain a list of sites known as the "hazardous sites list" where further remedial action is required. The department will add sites to this list after the completion of a site hazard assessment. Sites placed on the list will be ranked using the

department's hazard ranking method. The department will remove a site from the hazardous sites list if the site meets the requirements for removal described in WAC 173-340-330.

~~(c) **Biennial program report.** Every even-numbered year, the department will prepare a biennial program report for the legislature. The hazard ranking, along with other factors, will be used in this report to identify the projects and expenditures recommended for appropriation. See WAC 173-340-340.~~<sup>1</sup>

(4) **Detailed site investigations and cleanup decisions.** The following steps will be taken to ensure that the proper method of cleanup is chosen for the site.

(a) **Remedial investigation.** A remedial investigation will be performed at ranked sites under WAC 173-340-350. The purpose of the remedial investigation is to collect data and information necessary to define the extent of contamination and to characterize the site.

(b) **Feasibility study.** A feasibility study will be conducted at ranked sites under WAC 173-340-350. The purpose of the feasibility study is to develop and evaluate alternative cleanup actions. The department will evaluate the remedial investigation/feasibility study, establish cleanup levels and the point or points at which they must be complied with in accordance with the procedures provided for in Part VII of WAC 173-340-~~700 through 173-340-760~~ and select a cleanup action that protects human health and the environment and is based on the remedy selection criteria and requirements in WAC 173-340-350 through 173-340-390. WAC 173-340-440 sets forth the circumstances in which institutional controls will be required to ensure continued protection of human health and the environment.

(c) **Cleanup action plan.** The cleanup action will be set forth in a draft cleanup action plan that addresses cleanup requirements for hazardous substances at the site. After public comment on the draft plan, a final cleanup action plan will be issued by the department.

<sup>1</sup> Reflects changes to RCW 70.105D.030(3) in 2007 legislative session eliminating the biennial report.

**(5) Site cleanup.** Once the appropriate cleanup action has been selected for the site, the actual cleanup will be performed.

**(a) Cleanup actions.** WAC 173-340-400 describes the design and construction requirements for implementing the cleanup action plan.

**(b) Compliance monitoring and review.** The cleanup action must include compliance monitoring under WAC 173-340-410 and in some cases periodic review under WAC 173-340-420 to ensure the long-term effectiveness of the cleanup action.

**(6) Interim actions.** Under certain conditions it may be appropriate to take early actions at a site before completing the process described in subsections (2) through (5) of this section. WAC 173-340-430 describes when it is appropriate to take these early or interim actions and the requirements for such actions.

**(7) Leaking underground storage tanks.** Underground storage tank (UST) owners and underground storage tank operators regulated under chapter 90.76 RCW are required to perform specific actions in addition to what other site owners and operators would do under this chapter. WAC 173-340-450 describes the requirements for leaking underground storage tanks.

**(8) Procedures for conducting remedial actions.**

**(a) Remedial action agreements.** The department has authority to take remedial actions or to order persons to conduct remedial actions under WAC 173-340-510 and 173-340-540. However, the department encourages agreements for investigations and cleanups in appropriate cases. These agreements can be agreed orders or consent decrees reached under the procedures of WAC 173-340-520 and 173-340-530.

**(b) Independent remedial actions.** Persons may conduct investigations and cleanups without department approval under this chapter. The department will use the appropriate requirements in this chapter when evaluating the adequacy of any independent remedial action. Except as limited by WAC 173-340-515(2), nothing in this chapter prohibits persons from conducting such actions before the department is ready to act at the site; however, all interim and cleanup actions must be

reported to the department under WAC 173-340-515. Furthermore, independent remedial actions are conducted at the potentially liable person's own risk and the department may take or require additional remedial actions at these sites at any time. (See WAC 173-340-515 and 173-340-545.)

**(9) Public participation.** At sites where the department is conducting the cleanup or overseeing the cleanup under an order or decree, the public will receive notice and an opportunity to comment on most of the steps in the cleanup process. At many sites, a public participation plan will be prepared to provide opportunities for more extensive public involvement in the cleanup process.

These and other requirements are described in WAC 173-340-600.

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

(1) **Introduction.** The department shall conduct or require remedial actions consistent with the provisions of this section.

(2) **Information sharing.** It is the policy of the department 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. It is also the policy of the department 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.

(3) **Information exchange.** All persons are encouraged to contact the department and seek assistance on the general administrative and technical requirements of this chapter. Through its technical consultation program described in WAC 173-340-515, the department may also provide informal advice and assistance to persons conducting or proposing remedial actions at a specific site at any time. Unless the department is providing formal guidance for the implementation of an order or decree, any comments by the department or its agents are advisory and not commitments or approvals binding on the department. A person may not represent this advice as an approval of a remedial action. If the person requesting the advice is seeking binding commitments or approvals, then an order or consent decree shall be used.

(4) **Scope of public participation.** The department seeks to encourage public participation in all steps of the cleanup process. The department shall encourage a level of participation appropriate to the conditions at a facility and the level of the public's interest in the site.

(5) **Scope of information.** It is the department's intention that adequate information be gathered at a site to enable decisions on appropriate actions. It is also the department's intention 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~~ **simple cleanups**. Once adequate information has been obtained, decisions shall be made within the framework provided in this chapter and in site-specific orders or decrees.<sup>2</sup>

(6) **Preparation of documents.** Except for the initial investigation, any of the studies, reports, or plans used in the cleanup process can be prepared by either the department or the potentially liable person. The department retains all authority to review and verify the documents submitted and to make decisions based on the documents and other relevant information.

**(7) Inter-agency coordination.**

(a) If the department is conducting remedial actions or requiring remedial actions under an order or decree, the department shall ensure appropriate local, state, and federal agencies and tribal governments are kept informed and, as appropriate, involved in the development and implementation of remedial actions. The department may require a potentially liable person to undertake this responsibility. If the potentially liable person demonstrates that they are unable to obtain adequate involvement to allow the remedial action to proceed by a particular government agency or tribe, the department shall request the involvement of the agency or tribe.

(b) The nature and degree of coordination and consultation shall be commensurate with the other agencies' and tribes' interests and needs at the site. Interested agencies and tribes shall also be included in the mailing list for public notices under WAC 173-340-600. To facilitate coordination, it is important that agencies and tribes provide specific comments, including the identification of additional information needed or mitigating measures that are necessary or desirable to satisfy their concerns.

(c) In order to provide for expeditious cleanup actions, all federal, state, local agencies, and tribes are encouraged to coordinate when providing notices, holding meetings and hearings, and pre-

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<sup>2</sup> Reflects elimination of concept of "routine cleanup actions." See Section 200 for further information.

paring documents. Whenever reasonable, the department shall coordinate and combine its activities with other agencies and tribes to minimize the duplication of notices, hearings and preparation of documents, unless otherwise prohibited.

**(8) State Environmental Policy Act.** See chapter 197-11 WAC for the State Environmental Policy Act requirements pertaining to the implementation of the Model Toxics Control Act.

**(9) Appeals.** Unless otherwise indicated all department decisions made under this chapter are remedial decisions and may be appealed only as provided for in RCW 70.105D.060.

**WAC 173-340-140 Deadlines.**

**(1) Purpose.** It is the department's intent to move sites through the cleanup process as expeditiously as possible. However, the department is limited by the amount of personnel and funds it can expend in any given fiscal year. This section is intended to establish reasonable deadlines for remedying releases within these constraints. The department's process for ranking and setting site priorities is described in WAC 173-340-330 and 173-340-340, respectively.

**(2) Initial investigation.** Within ninety days of learning of a release or threatened release of a hazardous substance, the department shall complete an initial investigation under WAC 173-340-310.

**(3) Further investigation.** At least twice a year, the department shall determine which sites with completed initial investigations are a high priority for further investigation. At that time, the department shall schedule high priority sites for further investigations to begin within six months. This determination will be based on the best professional judgment of departmental staff. Sites may be scheduled for further investigation at any time if the department determines that the site warrants expedited action.

**(4) Site assessment and ranking.** For high priority sites, the department shall complete the site hazard assessment and hazard ranking within one hundred eighty days of the scheduled start date. These sites shall be identified in the department's *Site Register*. ~~Sites not designated as a high priority shall be scheduled for future investigations and listed in the biennial report to the legislature (WAC 173-340-340).~~<sup>3</sup> The department shall conduct at least thirty-five site hazard assessments each fiscal year until the number of sites needing site hazard assessments are reduced below this number.

**(5) Site investigation.** Within thirty days of ranking, the department shall designate which sites are a high priority for a remedial investigation/feasibility study and which sites are a lower priority where further action can be delayed. ~~The~~

~~department shall review these lower priority sites and provide an opportunity for public comment as part of the biennial report to the legislature (WAC 173-340-340).~~<sup>4</sup>

**(6) Remedial investigation/feasibility study.** For all sites designated as a high priority, the remedial investigation/feasibility study shall be completed under WAC 173-340-350 within eighteen months of signing the order or decree. The department may extend the deadline up to twelve months if the circumstances at the site merit a longer time frame. The department shall provide the public an opportunity to comment on any extension. The department shall initiate a remedial investigation/feasibility study on at least ten sites per fiscal year.

**(7) Cleanup action.** The department shall select the cleanup action under WAC 173-340-360 and file a consent decree or issue an order for cleanup action for all designated high priority sites within six months of the completion of the remedial investigation/feasibility study. The department may extend the deadline for up to four months for consent decree and order discussions. The department shall provide the public with an opportunity to comment on any deadline extension.

**(8) Site schedules.** The department shall publish site schedules for designated high priority sites in the *Site Register* according to WAC 173-340-600(6).

<sup>3</sup> Reflects changes to RCW 70.105D.030(3) in 2007 legislative session eliminating the biennial report.

<sup>4</sup> Reflects changes to RCW 70.105D.030(3) in 2007 legislative session eliminating the biennial report.

**WAC 173-340-200 Definitions.** For the purpose of this chapter, the following definitions apply:

**“Active vapor control system”** means a system that uses a vacuum pump to create an air pressure in the soil pores that is consistently less than that in the ambient air and buildings and other structures within the zone of influence of the system.<sup>5</sup>

**“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.

**“Affirmative obligations”** means a requirement to take certain actions. Examples include: conducting groundwater monitoring, operating treatment systems, conducting periodic inspections, posting financial assurance, reporting on these activities, and paying for the department’s costs of implementing institutional controls.<sup>6</sup>

**“Agreed order”** means an order issued by the department 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 70.105D.040(4) and shall 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 70.105D.070(2)(d)(xi).

**“Aliphatic hydrocarbons”** or **“aliphatics”** means organic compounds that are characterized by a straight, branched, or cyclic (non-benzene 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 and/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” for releases of hazardous substances into the air resulting from cleanup actions.

**“Applicable state and federal laws”** means all legally applicable requirements and those requirements that the department determines, based on the criteria in WAC 173-340-710~~(3)~~(4),<sup>7</sup> are relevant and appropriate requirements.

**“Area background”** means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site. (See also natural background.)<sup>8</sup>

**“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”** or **“BCF”** means the ratio of the concentration of a hazardous substance in the tissue of an ~~aquatic~~ organism

<sup>5</sup> New term used in air cleanup level and vapor chapters.

<sup>6</sup> New term used in use in Chapter 64.70 RCW (Uniform Environmental Covenants Act or UECA), passed in 2007 legislative session. Has been incorporated into institutional controls definition.

<sup>7</sup> Updated cross-reference to reflect subsequent changes.

<sup>8</sup> Editorial change.

~~divided by the~~ to the concentration of the hazardous substance concentration in the ambient in the medium (such as water) in which the organism resides. The BCF is a measure of the accumulation of a hazardous substance by an organism as a result of direct uptake from the medium in which it resides.<sup>9</sup>

"Bioaccumulation factor" or "BAF" means the ratio of the concentration of a hazardous substance in the tissue of an organism to the concentration of the hazardous substance in a medium (such as water) in which it resides, taking into account both the exposure of the organism to the medium and ingestion of food sources that are also exposed to that medium.<sup>10</sup>

"Biomarker" means a biological property used as a measure of the health of an organism. Examples of biomarkers are enzyme or hormone levels, cell counts, gene characteristics and contaminant metabolite levels.<sup>11</sup>

"Carcinogen" means any hazardous 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. and substances that meet the criteria for classification as "carcinogenic to humans" or "likely to be~~

<sup>9</sup> Changed to more clearly distinguish BCF from BAF. Based on definition in EPA-822-R-08-001 (2000).

<sup>10</sup> BAF is used in terrestrial ecological food web modeling and for calculating surface water cleanup levels. Based on definition in EPA-822-R-08-001 (2000). <http://water.epa.gov/scitech/swguidance/waterquality/standards/criteria/health/methodology/>.

<sup>11</sup> Term used in terrestrial ecological evaluations; based on various scientific publications.

carcinogenic to humans" consistent with the USEPA's "Guidelines for Carcinogen Risk Assessment" EPA/630/P-03/001F, USEPA, March 2005.<sup>12</sup>

~~"Carcinogenic—potency~~ Cancer slope factor" or ~~"CPF"~~ "CSF" means the upper 95th percentile confidence limit of the slope of the dose-response curve and is expressed in units of  $(1/(mg/kg-day))^{-1}$ . When derived from human epidemiological data, ~~the carcinogenic—potency~~ cancer slope factor may be a maximum likelihood estimate.<sup>13</sup>

"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.

<sup>12</sup> Definition updated to include newer federal carcinogen definition. <http://www.epa.gov/fedrgstr/EPA-TOX/2005/April/Day-07/t6642.htm>

<sup>13</sup> Editorial changes. Cancer slope factor is the current EPA terminology.

"**Cleanup action plan**" means the document prepared by the department under WAC 173-340-380 that selects the cleanup action and specifies cleanup standards and other requirements for the cleanup action.

"**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 70.105D.030 (2)(d). Establishing cleanup standards requires specification of the following:

- Hazardous substance concentrations that protect human health and the environment ("cleanup levels");
- The location on the site where those cleanup levels must be attained ("points of compliance"); and
- 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:

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

"Commercial property" means properties that are currently zoned for commercial or industrial property use and that are characterized by or are committed to traditional commercial uses such as offices, retail and wholesale sales, professional services, consumer services, and, warehousing.<sup>14</sup>

"**Compliance monitoring**" means a remedial action that consists of monitoring as described in WAC 173-340-410.

"**Conceptual site model**" means a conceptual understanding of a site that identifies potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors. This model is typically initially developed during the scoping of the remedial investigation and further refined as additional information is collected on the site. It 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).<sup>15</sup>

"**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.

"Contingent remedial action" means predetermined remedial actions that are to be conducted in the future if certain conditions occur

<sup>14</sup> Moved from Section 7490.

<sup>15</sup> Editorial change.

at a site. Examples include: removal of contaminated soil under a building if the building is torn down; or, a requirement to pump and treat groundwater if natural attenuation doesn't work as planned.<sup>16</sup>

"Contiguous undeveloped land" means an area of undeveloped land that is not divided into smaller areas by highways, extensive paving or similar structures that are likely to reduce the potential use of the overall area by wildlife. Roads Local access streets, major and minor collectors, minor arterials, sidewalks and other similar structures that are unlikely to reduce potential use of the area by wildlife shall not be considered to divide a contiguous area into smaller areas.<sup>17</sup>

"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.<sup>18</sup>

"Degradation by-products" or "decomposition by-products" means the secondary product of biological or chemical processes that break down chemicals into other chemicals. The decom-

<sup>16</sup> New term used in Section 440 describing which costs financial assurance may need to address.

<sup>17</sup> Moved from Section 7491 with changes highlighted. The term "road" has been replaced with a more precise definition defining the types of roads are meant to be included.

[The following footnote will be included in the rule.]  
The road classifications used in this definition are those used by WSDOT and can be found at:

<http://www.wsdot.wa.gov/mapsdata/tdo/FunctionalClassMaps/default.htm>

<sup>18</sup> Editorial change.

position by-products may be more or less toxic than the parent compound.

"Department" means the department of ecology.

"Department-supervised remedial actions" means remedial actions conducted with department supervision under an order or decree.<sup>19</sup>

"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 ecology or the director's designee.

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

"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. Examples of engineered controls include a layer of clean soil, asphalt or concrete paving or other materials placed over contaminated soils to limit contact with contamination; a ground~~water~~~~water~~ flow barrier such as a bentonite slurry trench; ground water gradient control systems such as French drains or pump and treat systems; and vapor control systems.

"Environment" means any plant, animal, natural resource, surface water (including underlying sediments), ground~~water~~~~water~~, drinking water

<sup>19</sup> Term used in Sections 515 and 545 to distinguish independent remedial actions from those with closer oversight by Ecology.

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.

“Environmental covenant” means a servitude arising from an environmental response project that imposes activity or use limitations. A remedial action conducted under this chapter is an environmental response project under Chapter 64.70 RCW. Environmental covenants under this act shall comply with Chapter 64.70 RCW. An environmental covenant is sometimes referred to as a “deed restriction.”<sup>20</sup>

"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.

“Especially valuable habitat” means:<sup>21</sup>

(i) Habitat for threatened or endangered species protected under the federal Endangered Species Act;

(ii) Habitat for “priority species” or “species of concern” designated under Title 77 RCW;

(iii) Habitat for plant species classified as “endangered,” “threatened,” or “sensitive” under Title 79 RWC;

(iv) Wetlands and Fish and Wildlife habitat conservation areas designated as critical areas under Chapter 36.70A.170 RCW; and

(v) Areas designated as especially valuable habitat by the department in consideration of factors such as:

- The rarity of the habitat for the geographic area in which the site is located;
- The size of the habitat;
- Whether the habitat functions as a wildlife corridor;

- Whether the habitat functions as a refuge or feeding area for migratory species;
- The structural diversity of the habitat;
- Surrounding habitat and land uses;
- Whether the habitat is manmade or natural;
- Whether cleanup would significantly disturb the ecological functions of the habitat;
- The level of human activity in the area; and,
- The length of time for recovery of the habitat after cleanup.

Examples of especially valuable habitat are some riparian areas and mature forested areas.

"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 260 days (five days per week for ~~52~~ 50 work weeks) over a year (365 days), the exposure frequency would be equal to:  $(5 \times 50)/365 = 0.7$ .<sup>22</sup>

"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

<sup>20</sup> From Chapter 64.70 RCW (Uniform Environmental Covenants Act or UECA), passed in 2007 legislative session. Last sentence added to tie to MTCA.

<sup>21</sup> New term used in Section 7490.

<sup>22</sup> Editorial correction. Calculation assumes 2 weeks of holidays and/or vacation.

exposure point differs from the source of the hazardous substance, the exposure pathway also includes a transport/exposure medium.

"**Facility**" means 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 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.

"**Federal cleanup law**" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ~~by the Superfund Amendments and Reauthorization Act of 1986,~~ as of the effective date of this chapter, 42 U.S.C. 9601 et seq.<sup>23</sup>

"**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 shall include nursery, root, or seed stock to be used for the production of food crops.

"**Free product**" means a nonaqueous phase liquid that is present in the soil, bedrock, ground water or surface water as a ~~distinct~~ 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 ground ~~water~~ water or surface water.<sup>24</sup>

"**Gastrointestinal absorption fraction**" ~~means the fraction of a substance transported~~

~~across the gastrointestinal lining and taken up systemically into the body~~ means the fraction of an ingested dose that crosses the gastrointestinal lining and becomes available for distribution to internal tissues and organs, relative to the fraction absorbed in the toxicity studies on which the reference dose or cancer slope factor is based.<sup>25</sup>

"**Groundwater**~~water~~" 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 sites list**" means the list of hazardous waste sites maintained under WAC 173-340-330.

"**Hazardous substance**" or "substance" means:<sup>26</sup>

(a) ~~any~~ Any dangerous or extremely hazardous waste as defined in RCW 70.105.010 ~~(5) and (6),~~ or any dangerous or extremely dangerous waste as designated by rule under chapter 70.105 RCW;

(b) ~~any~~ Any hazardous substance as defined in RCW 70.105.010~~(14)~~ or any hazardous substance as defined by rule under chapter 70.105 RCW;

(c) ~~any~~ 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~~ Petroleum or petroleum products; and

(e) ~~any~~ 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.

<sup>23</sup> Changed to reflect that CERCLA has been amended since 1986.

<sup>24</sup> Editorial change.

<sup>25</sup> Term used in soil direct contact risk assessment equations. Definition updated based on various EPA guidance documents.

<sup>26</sup> Reformatted for readability; subsection numbers in statute have changed and are proposed to be deleted to avoid the need for further changes should the statute be amended in the future.

**(f)** 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.

**"Hazardous waste site"** means any facility where there has been confirmation of a release or threatened release of a hazardous substance that requires remedial action.

**"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 effects assessment summary tables"** or **"HEAST"** means a data base 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 ground water water.

**"Independent remedial actions"** means remedial actions conducted without department oversight or approval and not under an order, agreed order, or consent decree.

**"Indicator hazardous substances"** or **"contaminant of concern"** 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.

**"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:

- Zoned for industrial use by a city or county conducting land use planning under chapter 36.70A RCW (Growth Management Act); or
- 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 under WAC 173-340-310.

**"Institutional controls"** means measures undertaken to limit or prohibit activities or uses of real property or resources that may interfere with the integrity of an interim action or a cleanup action ~~or, or that may~~ result in exposure to hazardous substances at the site. Institutional controls may also include affirmative obligations to ensure the integrity of an interim action or cleanup action. ~~For examples of institutional controls see~~ See also WAC 173-340-440(+).<sup>27</sup>

**"Integrated risk information system"** or **"IRIS"** means a data base 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:

- 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.
- 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

<sup>27</sup> Changed to incorporate concepts in Chapter 64.70 RCW (UECA). An example of limiting the use of "resources" would be prohibiting use of groundwater for drinking water.

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.

**"Mail"** means delivery through the United States Postal Service or an equivalent method of personal delivery or transmittal, including private mail carriers, or personal-in-person delivery. Mail also includes delivery through electronic mail (e-mail) or facsimile mail except where certified mail is required by this chapter.<sup>28</sup>

**"Maximum contaminant level"** or **"MCL"** means the maximum concentration of a contaminant allowed in drinking water established by either the Washington State Board of Health or the United States Environmental Protection Agency under the Federal Safe Drinking Water Act (42 U.S.C. 300f et seq.) and published in chapter 248-54246-290 WAC or 40 C.F.R. 141.<sup>29</sup>

~~**"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 Federal Safe Drinking Water Act (42 U.S.C. 300f et seq.) and published in chapter 248-54 WAC or 40 C.F.R. 141 for which no known or anticipated adverse effects on human health occur, including an adequate margin of safety.~~<sup>30</sup>

<sup>28</sup> To reflect wide-spread use of e-mail and occasional use of faxes for communication.

<sup>29</sup> Editorial changes to shorten and reflect change in WAC numbering.

<sup>30</sup> To reflect proposal in Sections 7202 - 7204 to remove MCLG's as a drinking water ARAR. See those sections for additional information.

**"Method detection limit"** or **"MDL"** means the minimum concentration of a compound that can be measured and reported with ninety-nine percent (99%) 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 potentially liable persons from the state toxics control account under WAC 173-340-560.

**"Model Toxics Control Act"** or **"act"** means chapter 70.105D RCW, first passed by the voters in the November 1988 general election as Initiative 97 and as since amended by the legislature.

**"Native vegetation"** means any plant community native to the state of Washington. The following sources shall be used in making this determination: *Natural Vegetation of Oregon and Washington*, J.F. Franklin and C.T. Dyrness, Oregon State University Press, 1988, and L.C. Hitchcock, C.L. Hitchcock, J.W. Thompson and A. Cronquist, 1955-1969, *Vascular Plants of the Pacific Northwest* (5 volumes). Areas planted with native species for ornamental or landscaping purposes shall not be considered to be native vegetation.<sup>31</sup>

**"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 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 and 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. (See also area background.)<sup>32</sup>

**"Natural biodegradation"** means ~~in situ~~ in situ biological processes such as aerobic respiration, anaerobic respiration, and co-metabolism, 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, ground~~water~~ water or surface water as a liquid not dissolved in water. The term includes both light nonaqueous phase liquid

<sup>31</sup> Moved from Section 7491.

<sup>32</sup> Editorial change.

(LNAPL) and dense nonaqueous phase liquid (DNAPL).

"**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 ground ~~water~~ 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 shall 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.

"**Owner or operator**" means any person that meets the definition of this term in RCW 70.105D.020~~(12)~~.<sup>33</sup>

"**PAHs (carcinogenic)**" or "**cPAHs**" means hazardous substances composed of two or more fused benzene rings, commonly called polycyclic aromatic hydrocarbons or PAHs, identified as known or suspected carcinogens and listed in Tables 708-2 and 708-3. ~~those polycyclic aromatic hydrocarbon 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.~~<sup>34</sup>

"**Periodic review**" means a review conducted under WAC 173-340-420.<sup>35</sup>

"**Permanent solution**" or "**permanent clean-up action**" means a cleanup action in which cleanup standards of Part VII of WAC 173-340-700 through 173-340-760 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.

"**Pilot study**" means an interim action to demonstrate or test the performance of a proposed cleanup action.<sup>36</sup>

"**Point of compliance**" means the point or points where cleanup levels established in accordance with WAC 173-340-720 through 173-340-760 shall be attained. This term includes both standard and conditional points of compliance. A

<sup>33</sup> Subsection number in statute has changed and is proposed to be deleted to avoid the need for further changes should the statute be amended in the future.

<sup>34</sup> To conform definition to Section 708, modified in 2007.

<sup>35</sup> Term used throughout this regulation.

<sup>36</sup> Term used in various Sections.

conditional point of compliance for particular 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 as specified in 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 as specified in 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, ehrysene, benzo[a]pyrene, dibenzo[a,h]anthracene, indeno[1,2,3-cd]pyrene, and benzo[ghi]perylene.<sup>37</sup>~~

**"Potentially liable person"** means any person who the department finds, based on credible evidence, to be liable under RCW 70.105D.040.

**"Practicable"** means capable of being designed, constructed and implemented in a reliable and effective manner including consideration of cost. When considering cost under this analysis, an alternative shall not be considered practicable if the incremental costs of the alternative are disproportionate to the incremental degree of benefits provided by the alternative over other lower cost alternatives.

**"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 department 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 shall not be used to represent dose response relationships (reference dose, reference concentration, cancer ~~potency~~ slope factor).<sup>38</sup>

**"Public notice"** means, at a minimum, adequate notice mailed to all persons who have made a timely request of the department and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the newspaper of largest circulation in the city or county of the proposed action; and opportunity for interested persons to comment.

**"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 at a site under current and potential future site use.

<sup>37</sup> Redundant definition no longer needed.

<sup>38</sup> Cancer slope factor is the term currently used by EPA.

**"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.

**"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, the department 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~~(3)~~(4) shall be used to determine if a requirement is relevant and appropriate.<sup>39</sup>

**"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/feasibility study"** means a remedial action that consists of activities conducted under WAC 173-340-350 to collect, develop, and evaluate sufficient information regarding a site to select a cleanup action under WAC 173-340-360 through 173-340-390.

**"Remediation level (REL)"** means a concentration (or other method of identification) of a hazardous substance in soil, water, air, or sediment. ~~It is used to identify where above which~~ a particular cleanup action component will be 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.<sup>40</sup>

**"Remedy" or "remedial action"** means any action or expenditure consistent with the purposes of chapter 70.105D 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~~ amount 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:~~<sup>41</sup>

- ~~• Cleanup standards for each hazardous substance addressed by the cleanup are obvious and undisputed, and allow for an~~

<sup>40</sup> Editorial changes.

<sup>41</sup> Ecology is proposing to eliminate the restriction that use of Method A be limited to "routine sites." Thus, this definition is no longer needed.

<sup>39</sup> Reflects change in subsection numbering.

~~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 the department 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.~~

**"Safety and health plan"** means a plan prepared under WAC 173-340-810.

**"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.

~~**"Science advisory board"** means the advisory board established by the department under RCW 70.105D.030(4).<sup>42</sup>~~

~~**"Secondary maximum contaminant level"** means the maximum concentration of a secondary contaminant in water established by the United States Environmental Protection Agency under the Federal Safe Drinking Water Act (42 U.S.C. 300f et seq.) and published in 40 C.F.R. 143.<sup>43</sup>~~

**"Sediment"** means naturally occurring and manmade particulate matter present on the bed or bottom of surface waters within the jurisdiction of the state of Washington under RCW 90.48 or RCW 90.54, and:<sup>44</sup>

(a) Water is present in the surface water for at least six contiguous weeks on an annual basis, and

(b) The sediment is located at or below the ordinary high water mark as that term is defined under Chapter 90.58 RCW.

**"Seminative vegetation"** means a plant community that includes at least some vascular plant species native to the state of Washington. The following shall not be considered seminative vegetation: Areas planted for ornamental or landscaping purposes, cultivated crops, and areas significantly disturbed and predominantly covered by noxious, introduced plant species or weeds (such as Scotch broom, Himalayan blackberry or knap-weed).<sup>45</sup>

**"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

<sup>42</sup> Reflects elimination of the MTCA SAB SB 5995, passed in 2009 legislative session.

<sup>43</sup> Definition not needed since this term not used in this regulation.

<sup>44</sup> Tentative definition pending sediment rule revisions.

<sup>45</sup> Moved from Section 7491.

for fish or shellfish; wild or scenic river; rookery; riparian area; big game winter range.

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

"**Site hazard assessment**" means a remedial action that consists of an investigation performed 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.

"**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.

"**Sufficiently protective**" means, for human health protection, based on a hazard quotient of one (1) or less, or an estimated individual lifetime excess cancer risk of one in one hundred thousand ( $1 \times 10^{-5}$ ) or less. For environmental protection, "sufficiently protective" means meets the standards established under this chapter.<sup>46</sup>

"**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 232-12-011(1) and 232-12-014.

"**Total excess cancer risk**" means the upper bound on the estimated individual lifetime excess cancer risk associated with exposure to multiple hazardous substances and multiple exposure pathways.<sup>47</sup>

"**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 will generally mean 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~~ semivolatile aliphatic and ~~nonvolatile~~ semivolatile aromatic petroleum fractions, as appropriate, or other test methods approved by the department.<sup>48</sup>

"**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 an underground storage tank and connected

<sup>46</sup> Reflects current practice for determining the applicability of ARARs under MTCA.

<sup>47</sup> To clarify that the target risk values in this rule apply to an individual, not the population risk.

<sup>48</sup> Editorial change reflecting more accurate description of these substances as semi-volatile, not non-volatile.

underground piping as defined in the rules adopted under chapter 90.76 RCW.

**"Undeveloped land"** means, for the purposes of WAC 173-340-7490 through 7494 and Table 749-1, land that is not covered by buildings, roads, paved areas or other barriers that would prevent wildlife from feeding on plants, earthworms, insects or other food in or on the soil.<sup>49</sup>

**"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 individual lifetime excess cancer risk of one in one hundred thousand"** means the upper ninety-fifth percent confidence limit on the estimated individual lifetime risk of one additional cancer above the background cancer rate per one hundred thousand individuals.<sup>50</sup>

**"Upper bound on the estimated individual lifetime excess cancer risk of one in one million"** means the upper ninety-fifth percent confidence limit on the estimated individual lifetime risk of one additional cancer above the background cancer rate per one million individuals.<sup>51</sup>

**"Vapor"** means a hazardous substance that is in the gaseous state or in the form of an aerosol (very fine particles of liquid or solid suspended in air).

**"Volatile organic compound hazardous substance"** means those carbon-based compounds.<sup>52</sup>

<sup>49</sup> Moved from Section 7491.

<sup>50</sup> To clarify that these target risk values apply to an individual, not the population.

<sup>51</sup> To clarify that these target risk values apply to an individual, not the population.

<sup>52</sup> Reflects Ecology's current practice for defining volatile substances in the CLARC database. Sources:

Vapor Pressure: Based on a review of vapor pressures of substances measured by the listed analytical methods.

- Hazardous substances listed in EPA methods 502.2, 524.2, 551, 601, 602, 603, 624, 1624C, 1666, 1671, 8011, 8015B, 8021B, 8031, 8032A, 8033, 8260B<sub>2</sub>, and those with similar vapor pressures or boiling points. See WAC 173-340-830(3) for references describing these methods.
- Hazardous substances not listed in the above methods but with a vapor pressure greater than  $6.75 \times 10^{-3}$  mmHg;
- Hazardous substances not listed in the above methods but with a boiling point less than 218.5 degrees Celsius;
- Hazardous substances not listed in the above methods and without vapor pressure or boiling point information but with a Henry's Law Constant greater than  $10^{-5}$  atm-m<sup>3</sup>/mol;
- For petroleum, ~~volatile means~~ aliphatic and aromatic constituents up to and including EC equivalent carbon fraction 12, plus naphthalene, 1-methylnaphthalene and 2-methylnaphthalene.

**"Voluntary Cleanup Program" or "VCP"** means remedial action is being conducted under a voluntary agreement with the department under WAC 173-340-515.<sup>53</sup>

**"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 ~~lands transitional between terrestrial and aquatic systems where the water table is usually at or near the ground surface or the land is covered by shallow water. For the purposes of this classification, wetlands must have one or more of the following attributes at least periodically, the land supports predominantly~~

Boiling Point: Based on a review of boiling points of substances measured by the listed analytical methods.

Henry's Law Constant: EPA Draft VI Guidance, Nov. 2002 EPA 530-D-02-004

<http://www.epa.gov/epaoswer/hazwaste/ca/eis/vapor.htm>

<sup>53</sup> New term used in Section 515.

~~hydrophytes; the substrate is predominately undrained hydric soil; and the substrate is nonsoil and saturated with water or covered by shallow water at some time during the growing season each year.~~ areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands. (Water bodies not included in the definition of wetlands as well as those mentioned in the definition are still waters of the state.)

Identification of wetlands and delineation of their boundaries under this chapter shall be conducted as specified in WAC 173-22-035.<sup>54</sup>

**"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.

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<sup>54</sup> Based on WAC 173-210A-020.

**WAC 173-340-210 Usage.** For the purposes of this chapter, the following shall apply:

(1) Unless the context clearly requires otherwise the use of the singular shall include the plural and conversely.

(2) The terms "applicable," "appropriate," "relevant," "unless otherwise directed by the department" and similar terms implying discretion mean as determined by the department, with the burden of proof on other persons to demonstrate that the requirements are or are not necessary.

(3) "**Approved**" means for department conducted or ordered remedial actions, or for potentially liable person conducted cleanups, agreed to by the department in an agreed order or decree governing remedial actions at the site.

(4) "Achieve," "attain," "meet" and similar terms of accomplishment have the same meaning, unless the context clearly requires otherwise. <sup>55</sup>

"**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.

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<sup>55</sup> Intended to address question raised by Science Advisory Board as to whether these different terms are intended to have different meanings (they aren't).

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

**(1) Purpose.** As part of a program to identify hazardous waste sites, this section sets forth the requirements for reporting a release of a hazardous substance due to past activities, whether discovered before or after the effective date of this regulation. It also sets forth the requirements for reporting independent remedial actions. The department may take any other actions it deems appropriate to identify potential hazardous waste sites consistent with chapter 70.105D RCW.

#### **(2) Release report.**

**(a)** Any owner or operator who has information that a hazardous substance has been released to the environment at the owner or operator's facility and may be a threat to human health or the environment shall report such information to the department within ninety days of discovery. Releases from underground storage tanks shall be reported by the owner or operator of the underground storage tank within twenty-four hours of release confirmation, in accordance with WAC 173-340-450. To the extent known, the report shall include:

- (i)** The identification and location of the hazardous substance;
- (ii)** Circumstances of the release and the discovery; and
- (iii)** Any remedial actions planned, completed, or underway. All other persons are encouraged to report such information to the department.

**(b)** Persons should use best professional judgment in deciding whether a release of a hazardous substance may be a threat or potential threat to human health or the environment. The following, which is not an exhaustive list, are examples of situations that generally should be reported 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~~ [water](#).

**(iv)** Free product such as petroleum product or other organic liquids on the surface of the ground or in the ground ~~water~~ [water](#).

**(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.

**(ix)** Leaking underground petroleum storage tanks not already reported under WAC 173-340-450.

**(3) Exemptions.** The following releases are exempt from these notification requirements:

**(a)** Application of pesticides and fertilizers for their intended purposes and according to label instructions;

**(b)** Lawful and nonnegligent use of hazardous substances by a natural person for personal or domestic purposes;

**(c)** A release in accordance with a permit that authorizes the release;

**(d)** A release previously reported to the department in fulfillment of a reporting requirement in this chapter or in another law or regulation;

**(e)** A release previously reported to the United States Environmental Protection Agency under CERCLA, Section 103(c) (42 U.S.C. Sec. 9603(c));

**(f)** Except for releases under subsection (2)(b)(iii) of this section, a release to the air;

**(g)** Releases discovered in public water systems regulated by the department of health; ~~or~~

**(h)** A release to a permitted wastewater facility;

**(i)** Releases of hazardous substances that have come to be located on the property through air emissions from a source already known to the department and which are within a geographic area identified by the department as having been impacted by that source; and <sup>56</sup>

<sup>56</sup> Intended to exempt repeated reporting of properties within previously known area-wide contamination. (The following footnote, based on the safe soils interim action priority

(j) Asphalt pavement still in service, including underlying tack coats, or recycled asphalt pavement either in the process of being reused or in use as a pavement or pavement base course or top course material.<sup>57</sup>

An exemption from the notification requirements in this section does not imply a release from liability under this chapter.

**(4) Report of independent remedial actions.**

See WAC 173-340-515 for additional reporting requirements for independent remedial actions. See WAC 173-340-450 for reporting requirements for independent remedial actions for releases from underground storage tanks.

**(5) Department response.**

Within ninety days of receiving information under this section, the department shall conduct an initial investigation in accordance with WAC 173-340-310. For sites on the hazardous sites list, the department shall, as resources permit, review reports that document independent cleanup actions. The review shall include an evaluation of whether the site qualifies for removal from the hazardous sites list or whether further remedial action is required.

**(6) Other obligations.**

Nothing in this section shall eliminate any obligations to comply with reporting requirements that may exist in a permit or under other laws.

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criteria, to be included in rule) This reporting exemption does not apply to properties impacted from air emissions from the former Asarco smelter in Ruston, WA and with soil concentrations greater than 20 ppm arsenic or 250 ppm lead.

<sup>57</sup> Intended to exempt reporting of TPH and cPAH found in asphalt pavement, which has been an issue in some site assessments. Under the specified circumstances, these materials are unlikely to pose a threat to human health or the environment that requires remediation since the contaminants are either tied up in the asphalt matrix or there is little chance for exposure. It should be noted that abandoned piles of asphalt, or fill including substantial amounts of asphalt, would still be required to be reported. “Top course” and “base course” are terms used by WSDOT for the thin layers of soil and crushed rock placed under pavement to provide a foundation for a road or parking lot. It is not intended to include fill.

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

**(1) Purpose.** ~~An initial investigation is an inspection of a suspected site by the department and documentation of conditions observed during that site inspection.~~<sup>58</sup> The purpose of the initial investigation is to determine whether a release or threatened release of a hazardous substance may have occurred that warrants further action under this chapter.

**(2) Applicability and timing.** Whenever the department receives information and has a reasonable basis to believe that there may be a release or a threatened release of a hazardous substance that may pose a threat to human health or the environment, the department shall conduct an the initial investigation within ninety days.

**(3) Exemptions.** The department shall not be required to conduct an initial investigation when:

(a) The circumstances associated with the release or threatened release are known to the department and have previously been or currently are being evaluated by the department or other government agency;

(b) The release is permitted;~~or~~

(c) The release is exempt from reporting under WAC 173-340-300(3); or

(d) The department receives the equivalent information in a report submitted under WAC 173-340-515(5) (Voluntary Cleanup Program).<sup>59</sup>

**(4) Contents.** An initial investigation consists of at least the following:<sup>60</sup>

(a) A review of readily available records and reports regarding the site.

(b) An inspection of the suspected site. This may include sampling to confirm a release; and

(c) Documentation of conditions observed during the site inspection.

~~(4)~~**(5) Department deferral to others.** The department may rely on another government agency or a contractor to the department to conduct an initial investigation on its behalf, provided the department determines such an

agency or contractor is not suspected to have contributed to the release or threatened release of a hazardous substance and that no conflict of interest exists.

~~(5)~~**(6) Department decision.** Based on the information obtained about the site, the department shall, within thirty days of completion of the inspection portion of the initial investigation, make one or more of the following decisions:<sup>61</sup>

(a) A site hazard assessment is required;

(b) Emergency remedial action is required;

(c) Interim action is required; or

(d) The site requires no further action under this chapter at this time because either:

(i) There has been no release or threatened release of a hazardous substance; or

(ii) A release or threatened release of a hazardous substance has occurred, but in the department's judgment, does not pose a threat to human health or the environment;

(iii) A release or threatened release has occurred, but the department finds that the release has been adequately cleaned up; or<sup>62</sup>

~~(iii)~~**(iv)** Action under another authority is appropriate.

A decision for a particular follow-up action does not preclude the department from requiring some other action in the future based on reevaluation of the site or additional information. In cases where the department determines the release is only to the soil, the department may defer completing the initial investigation for up to ninety days after completion of the field inspection to provide the site owner or operator an opportunity to clean up the release and avoid identification of the site as contaminated.<sup>63</sup>

~~(6)~~**(7) Notification.**

**(a) Sites requiring an emergency remedial action or interim action.** If the department determines that an emergency remedial action or

<sup>58</sup> Replaced with (4).

<sup>59</sup> Reflects current practice at voluntary cleanup program (VCP) sites. The need for remedial action has already been demonstrated through submittal of the VCP report, rendering the initial investigation superfluous.

<sup>60</sup> Reflects current practice.

<sup>61</sup> Reflects current practice.

<sup>62</sup> Reflects current practice.

<sup>63</sup> In cases of minor releases observed during the initial investigation, the department typically provides an opportunity for the site owner/operator to clean up the site to avoid listing a site as contaminated. This language is intended to reflect this practice.

interim action is required, then notification of the threat to the potentially affected vicinity may be required by the department. The method and nature of the notification shall be determined on a case-by-case basis using the methods specified in WAC 173-340-600. Such notification shall be the responsibility of the site owner or operator if required in writing by the department.

**(b) Sites requiring further remedial action.**

For sites requiring further remedial action under chapter 70.105D RCW, the department shall add the site to the department's site information system database. Prior to adding the site to this database, the department shall notify the owner, operator, and any potentially liable person known to the department of its decision.<sup>64</sup> This notification, called an "Early Notice Letter" shall be in writing, sent by certified mail or personally delivered, and may be combined with the determination of status letter in WAC 173-340-500.<sup>65</sup> This notification shall ~~be a letter ("Early Notice Letter") mailed to the person which includes~~ include the following information:

- (i) The basis for the department's decision;
- (ii) Information on the cleanup process provided for in this chapter;
- (iii) A statement that it is the department's policy to work cooperatively with persons to accomplish prompt and effective cleanups;
- (iv) A person or office of the department to contact regarding the contents of the letter; and
- (v) A statement that the letter is not a determination of liability and that cooperating with the department in planning or conducting a remedial action is not an admission of guilt or liability.

**(c) Sites not requiring further remedial action.** For sites requiring no further remedial action under chapter 70.105D RCW, if requested by the owner or operator, the department shall notify the owner or operator of the department's conclusion. ~~This notification shall be in writing~~

~~and may be combined with the determination of status letter in WAC 173-340-500.~~<sup>66</sup>

**(7)(8) Reservation of rights.** Nothing in this section shall preclude the department from taking or requiring appropriate remedial action at any time.

<sup>64</sup> Reflects current practice (Policy 310A). This database is different from the hazardous sites list described in Section 330.

<sup>65</sup> Moved up from (7)(c).

<sup>66</sup> Moved up to (7)(b).

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

**(1) Purpose.** The purpose of the site hazard assessment is to provide sufficient sampling data and other information for the department to:

**(a)** Confirm or rule out that a release or threatened release of a hazardous substance has occurred;

**(b)** Identify the hazardous substance and provide some information regarding the extent and concentration of the substance;

**(c)** Identify site characteristics that could result in the hazardous substance entering and moving through the environment;

**(d)** Evaluate the potential for the threat to human health and the environment; and

**(e)** Determine the hazard ranking of the site under WAC 173-340-330, if appropriate.

**(2) Timing.** Generally, a site hazard assessment shall be completed before proceeding to any subsequent phase of remedial action, other than an emergency or interim action. The department typically will not conduct a site hazard assessment at sites actively engaged in remedial actions under the voluntary cleanup program under WAC 173-340-515(5). However, should the department determine that insufficient progress is being made on such remedial actions; the department may opt to conduct a site hazard assessment.<sup>67</sup>

**(3) Administrative options.** The site hazard assessment may be conducted under any of the procedures described in WAC 173-340-510. The department may rely on another government agency or a contractor to the department to conduct a site hazard assessment on its behalf, provided the department determines such an agency or contractor is not suspected to have contributed to the release or threatened release of a hazardous substance and that no conflict of interest exists.

**(4) Scope and content.** A site hazard assessment is an early study to provide preliminary data regarding the relative potential hazard of the site. A site hazard assessment is not intended to be a

detailed site characterization; however, it shall include sufficient sampling, site observations, maps, and other information needed to meet the purposes specified in subsection (1) of this section. To fulfill this requirement, a site hazard assessment shall include, as appropriate, the following information:

**(a)** Identification of hazardous substances, including what was released and is threatened to be released and/or, if known, what products of decomposition, recombination, or chemical reaction are currently present on site, and an estimate of their quantities and concentrations;

**(b)** Evidence confirming a release or threatened release of hazardous substances to the environment;

**(c)** Description of facilities containing releases, if any, and their condition;

**(d)** Identification of the location of all areas where a hazardous substance is known or suspected to be, indicated on a site map;

**(e)** Consideration of surface water run-on and run-off and the hazardous substances leaching potential;

**(f)** Preliminary characterization of the subsurface and ground~~water~~~~water~~ actually or potentially affected by the release, including vertical depth to ground~~water~~~~water~~ and distance to nearby wells, bodies of surface water, and drinking water intakes;

**(g)** Preliminary evaluation of receptors, including: Human population, food crops, recreation areas, parks, sensitive environments, irrigated areas, and aquatic resources currently or potentially affected by ground~~water~~~~water~~, air, or surface water containing the release of hazardous substances at the site, including distances to these receptors; and

**(h)** Any other physical factors which may be significant in estimating the potential or current exposure to sensitive biota.

**(5) Guidance.** The department shall make available guidance for how to conduct a site hazard assessment to meet the requirements of this section. Persons are encouraged to contact the department to obtain a copy of the latest guidance.

**(6) Department decision.** Based on the results of the site hazard assessment and other available information about the site, the depart-

<sup>67</sup> Reflects current practice under VCP guidance of not ranking voluntary cleanup program sites actively engaged in remedial actions. Ranking of such sites is typically unnecessary for setting priorities for potential enforcement action since the site is already in the process of being cleaned up.

ment shall either determine the site warrants no further action using the criteria in WAC 173-340-310(5)(d) or proceed with ranking and placing the site on the hazardous sites list under WAC 173-340-330.

**(7) Notification.** The department shall make available the results of the site hazard assessment to the site's owner and operator and any person who has received a potentially liable person status letter under WAC 173-340-500 regarding the site. If the department finds after a site hazard assessment that the site requires no further action, it shall publish this decision in the *Site Register*.

### WAC 173-340-330 Hazard ranking and the hazardous sites list.

(1) **Purpose.** The department shall maintain a list of sites where remedial action has been determined by the department to be necessary. This list, called the hazardous sites list, shall fulfill the department's responsibilities under RCW 70.105D.-030(2)(b) and ~~(3)(4)(e)~~. ~~From this list, the department shall select those sites where action is anticipated and include those in the biennial program report under WAC 173-340-340.~~<sup>68</sup>

#### (2) Hazard ranking.

(a) The department shall give a hazard ranking to sites placed on the list. The purpose of hazard ranking is to estimate, based on the information compiled during the site hazard assessment, the relative potential risk posed by the site to human health and the environment. This assessment considers air, ground~~water-water~~, and surface water migration pathways, human and nonhuman exposure targets, properties of the substances present, and the interaction of these variables.

(b) The department shall evaluate each site on a consistent basis using the procedure described in the "Washington Ranking Method Scoring Manual," publication number 90-14, dated April 1992. The sediment component of a site shall be scored using the procedures described in "Sediment Ranking System," publication number 97-106, dated January 1990, and "Status Report: Technical Basis for SEDRANK Modifications," publication number 97-107, dated June 1991. ~~The ranking procedure and major amendments to the manual shall be reviewed by the science advisory board established under chapter 70.105D RCW.~~<sup>69</sup> Information obtained in the site hazard assessment, plus any additional data specified in these publications, shall be included in the hazard ranking evaluation.

(3) **Site Register.** The department shall periodically provide notification of the results of hazard ranking in the *Site Register*. The department shall make available hazard ranking results for each site to the site owner and operator and any

potentially liable person known to the department before publication in the *Site Register*.

(4) **Re-ranking.** The department may at its discretion re-rank a site if, before the initiation of state action at the site, the department receives additional information within the scope of the evaluation criteria which indicates that a significant change in rank may result.

(5) **Listing.** Sites shall be ranked and placed on the hazardous sites list if, after the completion of a site hazard assessment, the department determines that further action is required at the site. The list shall be updated at least once per year. Placement of a site on the hazardous sites list does not, by itself, imply that persons associated with the site are liable under chapter 70.105D RCW.

(6) **Site status.** The hazardous sites list shall reflect the current status of remedial action at each site. The department may change a site's status to reflect current conditions. The status for each site shall be identified as one of the following:

- (a) Sites awaiting further remedial action;
- (b) Sites with remedial action in progress;
- (c) Sites where a cleanup action has been conducted but confirmational monitoring is underway;
- (d) Sites with independent remedial actions;
- (e) Other categories established by the department.

#### (7) Removing sites from the list.

(a) The department may remove a site from the list only after it has determined that:

(i) For sites where the selected cleanup action does not include containment, all remedial actions except confirmational monitoring have been completed and compliance with the cleanup standards has been achieved at the site;

(ii) The listing was erroneous; or

(iii) For sites where the selected cleanup action includes containment, if all of the following conditions have been met:

(A) All construction and operation of remedial actions have been adequately completed and:

(I) Only passive maintenance activities such as monitoring, inspections and periodic repairs remain; or

(II) For ~~municipal-all~~ solid waste landfills ~~only~~, a closure plan meeting the substantive

<sup>68</sup> Reflects change to RCW 70.105D.030(4) in 2007 legislative session eliminating biennial report.

<sup>69</sup> Reference to the SAB eliminated to reflect 2009 legislation.

requirements in chapters 173-350 WAC or, 173-351 WAC, whichever is deemed under WAC 173-340-710 to be applicable or relevant and appropriate.<sup>70</sup> has been approved by the department as part of a remedial action under this chapter and the only remaining active maintenance activities are methane gas control, the operation of leachate collection and treatment systems, and/or surface water diversion;

(B) Sufficient confirmational monitoring has been done to demonstrate that the remedy has effectively contained the hazardous substances of concern at the site;

(C) All required performance monitoring has been completed;

(D) Any required institutional controls are in place and have been demonstrated to be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action;

(E) Written documentation is present in the department files that describes what hazardous substances have been left on site, where they are located, and the long-term monitoring and maintenance obligations at the site;

(F) When required under WAC 173-340-440, financial assurances are in place; and

(G) For sites with releases to groundwater, it has been demonstrated the site meets groundwater—~~water~~ cleanup levels at the designated point of compliance.

(b) A site owner, operator, or potentially liable person may request that a site be removed from the list by submitting a petition to the department. The petition shall include thorough documentation of all investigations performed, all cleanup actions taken, and adequate compliance monitoring to demonstrate to the department's satisfaction that one of the conditions in (a) of this subsection has been met. The department may require payment of costs incurred, including an advance deposit, for review and verification of the work performed.

The department shall review such petitions; however, the timing of the review shall be at its discretion and as resources may allow.

**(8) Record of sites.** The department shall maintain a record of sites that have been removed from the list under subsection (7) of this section. The record shall identify which sites have institutional controls under WAC 173-340-440 and which sites are subject to periodic review under WAC 173-340-420. This record will be made available to the public upon request.

**(9) Re-listing of sites.** The department may re-list a site that has previously been removed if it determines that the site requires further remedial action.

**(10) Notice.** The department shall provide public notice and an opportunity to comment when the department proposes to remove a site from the list. A site may not be removed from the list until the public comment period is completed.<sup>71</sup> Additions to the list, changes in site status, and removal from the list shall be published in the *Site Register*.

<sup>70</sup> This category for delisting is proposed to be expanded to include all types of landfills that have been properly closed using modern standards. WAC 173-351 applies to municipal solid waste landfills. WAC 173-350 applies to all other types of landfills, such as industrial waste landfills.

<sup>71</sup> Reflects current practice; consistent with MTCA's intent of meaningful public involvement.

WAC 173-340-340 Biennial program  
report.<sup>72</sup>

*[Section to be deleted.]*

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<sup>72</sup> Reflects changes to RCW 70.105D.030(3) in 2007 legislative session eliminating biennial report.

### WAC 173-340-350 Remedial investigation and feasibility study.

(1) **Purpose.** The purpose of a remedial investigation/feasibility study is to collect, develop, and evaluate sufficient information regarding a site to select a cleanup action under WAC 173-340-360 through 173-340-390.

(2) **Timing.** Unless otherwise directed by the department, a remedial investigation/feasibility study shall be completed before selecting a cleanup action under WAC 173-340-360 through 173-340-390, except for an emergency or interim action.

(3) **Administrative options.** A remedial investigation/feasibility study may be conducted under any of the procedures described in WAC 173-340-510 and 173-340-515.

(4) **Submittal requirements.** <sup>73</sup> ~~For a remedial action conducted by the department or under a decree or order, a report shall be prepared at~~ At the completion of the remedial investigation/feasibility study, a report complying with this chapter shall be prepared and submitted to the department. ~~Additionally, the~~ The department may require earlier submittal of reports to be submitted for discrete elements of the remedial investigation/feasibility study such as the plans required under WAC 173-340-810 & 820 (safety and health plan and sampling and analysis plan) or work for particular elements of the investigation. Reports prepared ~~under this section and~~ under an order or decree shall be submitted to the department for review and approval. ~~See also subsection (7)(e)(iv) of this section for information on the sampling and analysis plan and the safety and health plan.~~ See WAC 173-340-515(4) for submittal requirements for independent remedial actions. All reports must meet the requirements in WAC 173-340-840.

(5) **Public participation.** Public participation will be accomplished in a manner consistent with WAC 173-340-600.

(6) **Scope.** <sup>74</sup> The scope of a remedial investigation/feasibility study ~~varies~~ will vary from site to site, depending on the ~~informational and analytical needs~~ characteristics and complexity of the specific facility. This requires that the process remain flexible and be streamlined when possible to avoid the collection and evaluation of unnecessary information so that the cleanup can proceed in a timely manner.

(a) **Incorporation of pre-existing information.** Where information required in subsections ~~(7)(e)(8)~~ and ~~(8)(e)(9)~~ of this section is available in other documents for the site, that information may be summarized and incorporated by reference to avoid unnecessary duplication. However, in all cases sufficient information must be collected, developed, and evaluated to enable the selection of a cleanup action under WAC 173-340-360 through 173-340-390. <sup>75</sup>

(b) **Integration of the remedial investigation with the feasibility study.** Site characterization activities may be integrated with the development and evaluation of alternatives in the feasibility study, as appropriate. <sup>76</sup>

(c) **National priorities list sites.** ~~In addition, for~~ For facilities on or proposed for the federal national priorities list, a remedial investigation/feasibility study shall also comply with federal requirements. <sup>77</sup>

(d) **Sediment sites.** In addition to the information required by this chapter, for facilities with sediment impacts, the remedial investigation/feasibility study shall also comply with WAC 173-204. <sup>78</sup>

### (7) Procedures for conducting a remedial investigation.

(a) **Purpose.** The purpose of the remedial investigation is to collect the data necessary to adequately characterize the site for the purpose of developing and evaluating cleanup action alterna-

<sup>74</sup> Several editorial changes.

<sup>75</sup> Summary added to facilitate Ecology's and the public's review.

<sup>76</sup> Moved up from (7)(a).

<sup>77</sup> Added proposed NPL sites as these sites typically end up on the NPL list.

<sup>78</sup> To clarify relationship between the sediment rule requirements and this rule.

<sup>73</sup> Primarily editorial changes. A cross reference has been added to Section 840 to more clearly tie the requirements in that Section to the RI/FS.

tives. ~~Site characterization may be conducted in one or more phases to focus sampling efforts and increase the efficiency of the remedial investigation. Site characterization activities may be integrated with the development and evaluation of alternatives in the feasibility study, as appropriate.~~<sup>79</sup>

**(b) Scoping activities.** To focus the collection of data and to assist the department in making the preliminary evaluation required under the State Environmental Policy Act (see WAC 197-11-256), the following scoping activities ~~may shall, as appropriate,~~ be undertaken before conducting a remedial investigation:<sup>80</sup>

(i) Assemble and evaluate existing data on the site, including the results of any interim or emergency actions, initial investigations, site hazard assessments, and other site inspections;

(ii) Develop a preliminary conceptual site model as defined in WAC 173-340-200;

(iii) Begin to identify likely cleanup levels for the site;

(iv) Begin to identify likely cleanup action components that may address the releases at the site;

(v) Consider the type, quality and quantity of data necessary to support selection of a cleanup action; and

(vi) Begin to identify likely applicable state and federal laws under WAC 173-340-710.

**(c) Workplans.** Prepare a safety and health plan and a sampling and analysis plan prior to conducting field work for the remedial investigation/feasibility study. These plans shall conform to the requirements specified in WAC 173-340-810 and 173-340-820.<sup>81</sup>

**(d) Geographic extent of study.** The study shall extend to all areas where hazardous substances have come to be located at concentrations above potential human or ecological concern. This shall include, where

necessary, areas beyond the property that is the source of the contamination.<sup>82</sup>

**(e) Expediting investigations.** While it may be appropriate to phase site characterization work at some sites, expedited site assessment techniques are encouraged to speed up site investigations. For example, using field screening methods to guide investigations and fast turnaround laboratory analyses to provide real-time feedback during investigations. These techniques can minimize the need for follow-up investigations and the associated costs and delay.<sup>83</sup>

**(e)(8) Remedial Investigation Content.** A remedial investigation shall include the following information as appropriate:

**(i)(a) General facility information.** General information, including: Project title; name, address, and phone number of project coordinator; legal description of the facility location; dimensions of the facility; present owner and operator; chronological listing of past owners and operators and operational history; and other pertinent information.

**(i)(b) Site conditions map.** ~~An~~ One or more existing site conditions maps that illustrates relevant current site features such as property boundaries, ~~proposed facility boundaries~~ source(s) of the release, surface topography, surface water, wetlands and undeveloped areas, surface and subsurface structures, utility lines, well locations, and other pertinent information.<sup>84</sup>

**(c) Conceptual site model.** Identification of all potentially relevant current and future human health and ecological exposure pathways using a conceptual site model.<sup>85</sup>

**(iii)(d) Field investigations.** Sufficient investigations to characterize the distribution of hazardous substances present at the site, and threat

<sup>79</sup> Editorial changes. Deleted language removed to focus this paragraph on the purpose. Deleted provisions addressed in (6)(b) and (7)(e).

<sup>80</sup> Intended to emphasize upfront planning to make RI/FS more efficient and cost-effective.

<sup>81</sup> Moved up from subsection 8(c)(iv).

<sup>82</sup> To emphasize that investigations do not stop at the property line.

<sup>83</sup> Unnecessary, multi-phased investigations can lead to long delays in getting to cleanup. This change is intended to emphasize speeding up site investigations to minimize such delays. Expedited techniques will also often save money over the long run.

<sup>84</sup> Editorial changes.

<sup>85</sup> Added to emphasize the need to conceptualize the exposure pathways before beginning field investigations.

to human health and the environment. Where applicable to the site, these investigations shall address the following:

**(A)(i) Surface water and sediments.** Investigations of surface water and sediments to characterize significant hydrologic features such as: Surface drainage patterns and quantities, areas of erosion and sediment deposition, surface waters, floodplains, and actual or potential hazardous substance migration routes towards and within these features.

**(A)** Sufficient surface water and sediment sampling shall be performed to adequately characterize the areal and vertical distribution and concentrations of hazardous substances.

**(B)** Properties of surface and subsurface sediments that are likely to influence the type and rate of hazardous substance migration, or are likely to affect the ability to implement alternative cleanup actions shall be characterized.

**(C) For sites with sediment contamination, other information as necessary to meet the requirements in WAC 173-204 shall be included.**<sup>86</sup>

**(B)(ii) Soils.** Investigations to adequately characterize the areal and vertical distribution and concentrations of hazardous substances in the soil due to the release. Properties of surface and subsurface soils that are likely to influence the type and rate of hazardous substance migration, or which are likely to affect the ability to implement alternative cleanup actions shall be characterized.

**(C)(iii) Geology and groundwater-water system characteristics.** Investigations of site geology and hydrogeology to adequately characterize the areal and vertical distribution and concentrations of hazardous substances in the groundwater-water and those features which affect the fate and transport of these hazardous substances. This shall include, as appropriate,<sup>87</sup>

**(A)** The description, physical properties, and distribution of bedrock and unconsolidated materials;<sup>88</sup>

**(B)** Groundwater-water flow direction, rate and vertical and horizontal gradients for affected and potentially affected groundwater-water; groundwater-water divides; areas of groundwater-water recharge and discharge;<sup>89</sup>

**(C)** Location of public and private production water supply wells; and

**(D)** Groundwater-water quality data.

**(D)(iv) Air.** An evaluation of air quality impacts, including sampling, where appropriate, and This shall include sufficient information to evaluate the potential impacts of vapor migration on air quality within current and future buildings and other structures and outdoor ambient air. See WAC 173-340-3500 through 3520 for vapor evaluation procedures.<sup>90</sup>

**(v) Climate.** Information regarding local and regional climatological characteristics which are likely to affect the hazardous substance migration such as seasonal patterns of rainfall, the magnitude and frequency of significant storm events, temperature extremes and, prevailing wind direction, variations in barometric pressure, and wind velocity.<sup>91</sup>

**(E)(vi) Land use.** Information regarding present and proposed land and resource uses and the comprehensive plan and zoning for the site and potentially affected areas. Include and information characterizing human and ecological populations that are reasonably likely to be exposed or

<sup>86</sup> To clarify relationship between the sediment rule requirements and this rule.

<sup>87</sup> This provision contains several changes and has been reformatted to provide a better description what's needed to characterize site geology and hydrogeology.

<sup>88</sup> Such as the permeability, density and bedrock fracture characteristics. Unconsolidated materials/soils not expected to be removed during the cleanup should be characterized using the Unified Soil Classification System (ASTM D 2487), supplemented as necessary with grain size and other physical properties tests. [Footnote to be added to rule.]

<sup>89</sup> To emphasize that both horizontal and vertical flow needs to be defined.

<sup>90</sup> New requirement to reflect new scientific understanding of the importance of vapor exposures at sites.

<sup>91</sup> Editorial changes. Barometric pressure variations are not climatic and are considered in a vapor intrusion evaluation under (v).

potentially exposed to the release based on such uses.<sup>92</sup>

**(F)(vii) Natural resources and ecological receptors.**

~~(F)(A)~~ Information to determine the impact or potential impact of the hazardous substance from the facility on natural resources and ecological receptors, ~~including any.~~ This includes sufficient information needed to conduct a terrestrial ecological evaluation, under WAC 173-340-7492~~0~~ or through 173-340-7493-7494, or to establish an exclusion under WAC 173-340-7491.

~~(H) 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. This may be accomplished by evaluating residual threats to the environment after cleanup action alternatives for human health protection have been developed. If this approach is used, the remedial investigation may be phased.~~<sup>93</sup>

**(B)** At many sites, cleanup actions addressing human health or aquatic exposure pathways will also address terrestrial ecological concerns. At these sites, it may be appropriate to base the terrestrial ecological evaluation on conditions anticipated to exist after cleanup for these other exposure pathways. Nevertheless, sufficient information must be compiled and presented in the remedial investigation to document site conditions and the basis for determinations made under WAC 173-340-7490 through 7494.<sup>94</sup>

Examples of sites where this approach may not be appropriate include: A site contaminated with a hazardous substance that 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 a site where the development of a human health based remedy is

<sup>92</sup> Information from the comprehensive plan and zoning is needed to determine potential future land uses.

<sup>93</sup> Replaced with (B).

<sup>94</sup> An example of how to integrate the terrestrial ecological evaluation into the remedial investigation/feasibility study is provided in WAC 173-340-7490. [This footnote will be added to the rule.]

expected to be a lengthy process, and postponing the terrestrial ecological evaluation would cause further harm to the environment.

~~(H) If it is determined that a simplified or site-specific terrestrial ecological evaluation is not required under WAC 173-340-7491, the basis for this determination shall be included in the remedial investigation report.~~<sup>95</sup>

**(G)(viii) Hazardous substance sources.** A description of and sufficient sampling to define the location, quantity, areal and vertical extent, concentration within and sources of releases. Where relevant, information on the physical and chemical characteristics, and the biological effects of hazardous substances shall be provided.

**(H)(ix) Regulatory classifications.** Regulatory ~~designations classifying~~ classifications for affected air, surface water and groundwater water, if any. Identify potentially applicable and relevant and appropriate standards for affected media.<sup>96</sup>

**(e) Preliminary Cleanup Levels.** A compilation of preliminary cleanup levels for all current and potential exposure pathways. Describe the basis for these cleanup levels, along with a comparison to the concentrations of hazardous substance found at the site.<sup>97</sup>

~~(iv) Workplans.~~ A safety and health plan and a sampling and analysis plan shall be prepared as part of the remedial investigation/feasibility study. These plans shall conform to the requirements specified in WAC 173-340-810 and 173-340-820.<sup>98</sup>

~~(v)(f) Other information.~~ Other information may be as required by the department.<sup>99</sup>

**(8)(9) Procedures for conducting a feasibility study.**<sup>100</sup>

<sup>95</sup> Addressed in (A)(III), above.

<sup>96</sup> This information is needed to develop cleanup levels.

<sup>97</sup> The term “preliminary” cleanup levels is used because a final determination of cleanup levels reflects several adjustments (such as for additive risk) that may not have been conducted at this stage of the process.

<sup>98</sup> Moved up to (7)(c).

<sup>99</sup> Editorial change.

<sup>100</sup> This subsection has been extensively reorganized and revised. It is shown as new language to facilitate review. Substantive changes are identified in the footnotes.

*[Delete existing language and replace with the following]*

**(a) Purpose.** The purpose of the feasibility study is to develop and evaluate cleanup action alternatives to enable a cleanup action to be selected for the site.

**(b) When to conduct a feasibility study.** If the remedial investigation finds that concentrations of hazardous substances do not exceed the cleanup levels at a standard point of compliance for all media, no further action is necessary. If the release has been cleaned up by prior actions, submit documentation of the remedial actions conducted.

**(c) Model remedies.** If a model remedy is available under WAC 173-340-390 and is selected up-front as the preferred alternative, there is no need to complete the steps described in this subsection. However, the relevant documentation in subsection (10) of this section must still be submitted.<sup>101</sup>

**(d) Alternatives analysis.** The following process shall be used to identify, screen and evaluate alternatives for cleaning up a site. See figure 350-1 for a visual depiction of the remedy selection process.<sup>102</sup>

**(i) Step 1-Remedial Action Goals.** Identify the goals expected to be achieved by the cleanup, in addition to compliance with this chapter.

**(ii) Step 2-Identify Alternatives.** Identify alternatives that address all areas of the site where cleanup levels have been exceeded and for all relevant exposure pathways. The alternatives must provide for protection of human health and the environment (including, as appropriate, aquatic and terrestrial ecological receptors) by eliminating, reducing or otherwise controlling risks posed through each exposure pathway and migration route.<sup>103</sup>

**(A)** A reasonable number and type of alternatives shall be evaluated, taking into account the characteristics and complexity of the site, including current site conditions and physical constraints.<sup>104</sup>

**(B)** The most practicable permanent cleanup action alternative must be included. This will serve as the baseline against which other alternatives will be evaluated for the purpose of determining whether an alternative is permanent to the maximum extent practicable.

**(C)** Sites requiring an environmental impact statement and federal cleanup law sites must include a no action alternative.<sup>105</sup>

**(D)** For each environmental medium, include at least one alternative with a standard point of compliance. Where appropriate, alternatives with conditional points of compliance may also be included.<sup>106</sup>

**(E)** Alternatives can be included that consist of a mix of cleanup action components. For example, an alternative could consist of treating the areas of highest soil concentration and off-site disposal of the remaining contaminated soil.

**(F)** Alternatives can also include remediation levels to define when particular cleanup action components will be used. For example, in the preceding example in (E), the concentration determining which soils are treated versus which are disposed of would be considered a remediation level. The basis for this concentration, such as technology limits or human health risk, must be explained in the report. See WAC 173-340-355 for additional discussion of remediation levels.

**(iii) Step 3-Initial Screening of Alternatives.** Where appropriate, screen alternatives to reduce the number of alternatives for the final detailed evaluation. For sites conducting a feasibility study under an order or decree, the department shall make the final determination of which alternatives must be evaluated in detail in the feasibility study.

<sup>101</sup> Provides a description of process advantages of use of model remedies, consistent with Section 390.

<sup>102</sup> The additions and changes to this subsection are intended to more clearly describe the step by step process for identifying, evaluating and selecting a remedy. In general, these are not new requirements but reflect current practice.

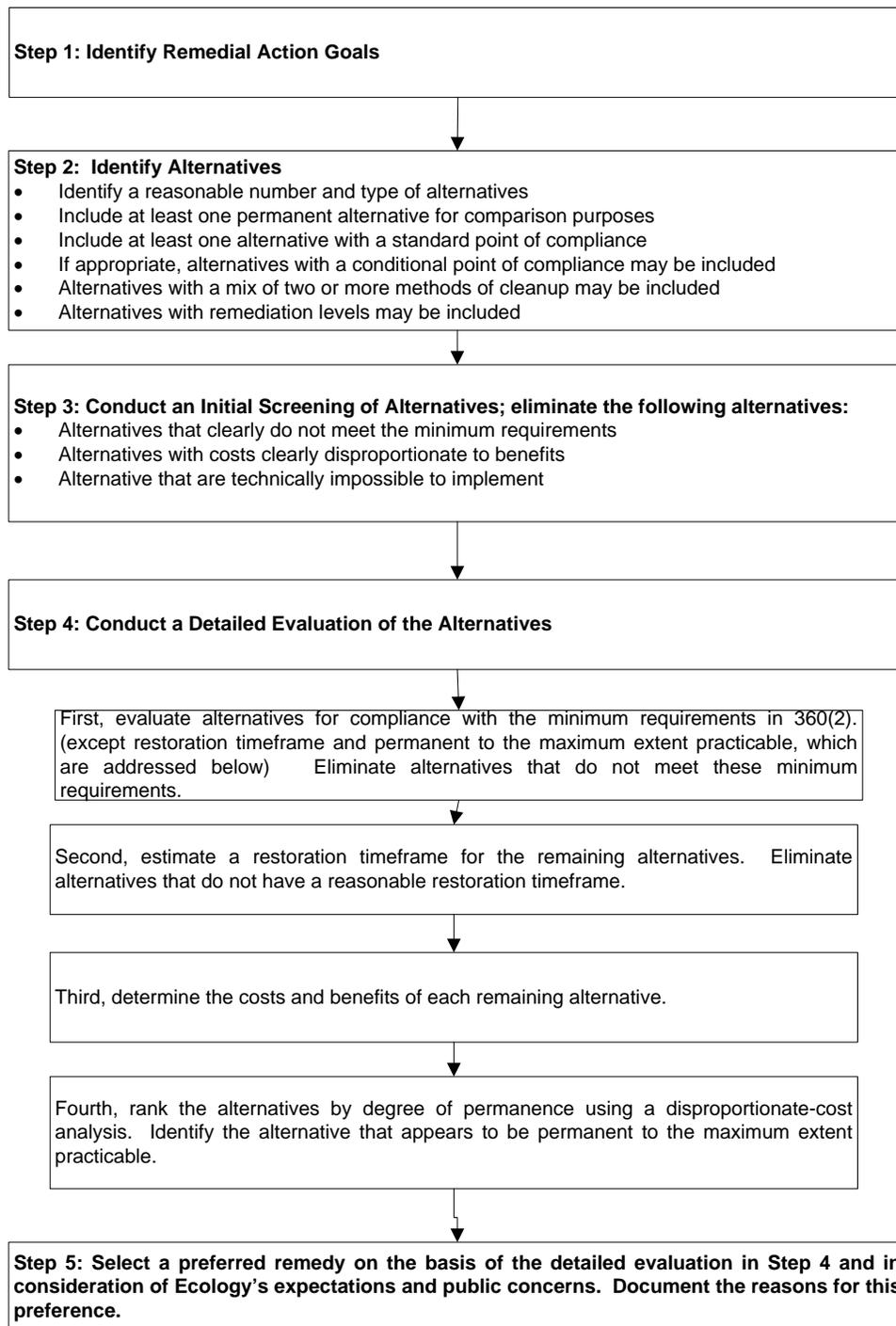
<sup>103</sup> Existing language moved up from later in this section with some modification.

<sup>104</sup> (A) and (B) moved up from later in this Section.

<sup>105</sup> New provision to clarify when a no action alternative must be included in the FS.

<sup>106</sup> (D), (E) & (F) moved up from later in this section with minor rewording.

**Figure 350-1: Remedy Selection Process under WAC 173-340-350.**<sup>107</sup>



<sup>107</sup> This figure is intended to help explain the remedy selection process under this chapter. It does not establish or modify regulatory requirements. [this footnote will be in the rule]

The following cleanup action alternatives or components may be eliminated from the feasibility study:

(A) Alternatives that, based on a preliminary analysis, so clearly do not meet the minimum requirements specified in WAC 173-340-360 so that a more detailed analysis is unnecessary.

(B) Alternatives for which costs are clearly disproportionate to benefits under WAC 173-340-360(4); and

(C) Alternatives or components that are not technically possible at the site.

(iv) **Step 4-Detailed Evaluation of Alternatives.** A detailed evaluation of each alternative not eliminated under (c) of this subsection shall be conducted next. This detailed evaluation shall use the criteria specified in WAC 173-340-360 and generally be conducted as follows: <sup>108</sup>

(A) **First**, evaluate whether each alternative meets all of the minimum requirements in WAC 173-340-360(2), except the restoration time frame and the permanent to the maximum extent practicable requirements (which are evaluated later). Eliminate alternatives that do not meet the minimum requirements.

(B) **Second**, estimate a restoration time frame for each alternative and describe the basis for this estimate. Then evaluate the reasonableness of this time frame using the criteria in WAC 173-340-360(4). When sufficient information exists, eliminate alternatives that do not provide for a reasonable restoration time frame. <sup>109</sup>

(C) **Third**, determine the costs and benefits of each alternative using the evaluation criteria in WAC 173-340-360(3)(g).

(D) **Fourth**, conduct the disproportionate-cost analysis specified in WAC 176-340-360(3)(e) and

(f). Rank the alternatives by the degree to which they are permanent to the maximum extent practicable using the criteria in WAC 176-340-360(3)(g).

(v) **Step 5-Select a Remedy.** On the basis of the detailed evaluation in step 4, and in consideration of the expectations in WAC 173-340-370 and known public concerns, propose a preferred remedy.

**(10) Feasibility Study Content.** <sup>110</sup>

*[Delete existing language and replace with the following.]*

A feasibility study shall include the following information as appropriate.

(a) A summary of the findings from the remedial investigation updated with the latest information including:

(i) Conceptual site model;

(ii) Preliminary cleanup levels for indicator hazardous substances in each affected medium; <sup>111</sup>

(iii) The proposed point(s) of compliance for each affected medium; and,

(iv) Maps, cross-sections, and appropriate calculations illustrating the location, estimated amount and concentration distribution of hazardous substances above proposed cleanup levels for each affected medium.

(b) Results of any additional investigations conducted since completion of the remedial investigation;

(c) Results of any treatability studies conducted to refine proposed alternatives;

(d) Remedial action goals identified in step 1 of the feasibility study;

(e) Alternatives identified in step 2 of the feasibility study;

<sup>108</sup> This step by step description of the detail evaluation process is intended to help clarify the sequence for selecting a remedy.

<sup>109</sup> In some cases it will not be possible to determine what a reasonable restoration timeframe is until the disproportionate-cost analysis has been completed. In these cases, the alternatives should be carried through the full evaluation process and the restoration timeframe and permanence evaluation conducted concurrently. [this footnote will be in the rule]

<sup>110</sup> This subsection has been extensively reorganized and revised. It is shown as new language to facilitate review. Substantive changes are identified in the footnotes.

<sup>111</sup> Generally, cleanup levels will need to be developed for each medium where the substances have come to be located. However, in some cases cleanup levels may not be needed for all affected media at the site. For example, it may not make sense to develop a soil cleanup level for a municipal waste landfill where capping of the municipal waste is the preferred alternative and no soil cleanup is anticipated. [this footnote will be in the rule]

(f) Alternatives eliminated in the step 3 initial screening process and the basis for elimination;

(g) Documentation of the detailed evaluation process in step 4 of the feasibility study. For each alternative evaluated in detail this shall include: <sup>112</sup>

- The location and estimated amount of each contaminant to be removed or treated by the alternative and the estimated time frame in which removal or treatment will occur; and
- The location, estimated amount and projected concentration distribution of each contaminant remaining on site above proposed cleanup levels after implementation of the alternative;

(h) The proposed preferred remedy (step 5) and the basis for this selection;

(i) Applicable local, state and federal laws specific to the proposed preferred remedy, including a description of permit/approval conditions identified in consultation with the permitting agencies;

(j) A completed state environmental policy act (SEPA) checklist for the proposed preferred remedy and other information needed to make a threshold determination under chapter 43.21C, RCW. Where it is proposed to integrate the remedial investigation/feasibility study with an environmental impact statement, the feasibility study shall include information necessary to accomplish this (see WAC 197-11-262). <sup>113</sup>

(k) Treatability and pilot studies needed to develop and evaluate cleanup action alternatives for a site; and

(l) Other information as required by the department.

**(11) Requirements for managing materials generated by site investigations.** Any soil, sediment, water or waste contaminated by a hazardous substance and generated during a remedial investigation/feasibility study must be managed in compliance with applicable local, state and federal laws and any requirements

specified by the department. Materials requiring off-site treatment, storage or disposal, shall be transported to a facility permitted or approved to handle these materials. <sup>114</sup>

<sup>112</sup> This information is needed to conduct a disproportionate-cost analysis.

<sup>113</sup> (j) and (k) moved up from later in this section.

<sup>114</sup> New provision added to emphasize that wastes generated by site investigations must be properly treated or disposed of.

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

(1) **Purpose.** <sup>115</sup> A cleanup action or interim action selected for a site will often involve a combination of cleanup ~~action~~ components, such as treatment of some soil contamination and containment of the remainder. The purpose of remediation levels is to define when these various components will be used in the cleanup. Remediation levels are used to identify the concentrations (or other methods of identification) of hazardous substances at which different cleanup action components will be used. (See the definition of remediation level in WAC 173-340-200.) Remediation levels may be used at sites where a combination of cleanup actions components are used to achieve cleanup levels at the point of compliance (see the examples in subsection (3)(a) and (c) of this section). Remediation levels may also be used at sites where the cleanup action involves the containment of soils as provided under WAC 173-340-740 (6)(f) and at sites conducting interim actions (see the examples in subsection (3)(b) and (d) of this section).

(2) **Relationship to cleanup levels and cleanup standards.** Remediation levels are not the same as cleanup levels. A cleanup level defines the concentration of a hazardous substances above which a contaminated medium (e.g., soil) must be remediated in some manner (e.g., treatment, containment, institutional controls). A remediation level, on the other hand, defines the concentration (or other method of identification) of a hazardous substance in a particular medium above or below at which a particular cleanup action component (e.g., soil treatment or containment) will be used. Remediation levels, by definition, exceed cleanup levels. <sup>116</sup>

Cleanup levels must be established for every site. Remediation levels, on the other hand, may not be necessary or appropriate at a site. Whether remediation levels are necessary used depends on

the cleanup action selected. For example, remediation levels would not be necessary if the selected cleanup action removes for off-site disposal all soil that exceeds the cleanup level at the applicable points of compliance. <sup>117</sup>

A cleanup action that uses remediation levels must still meet each of the minimum requirements specified in WAC 173-340-360, including the requirement that all cleanup actions the cleanup action must comply with cleanup standards. Compliance with cleanup standards requires, in part, that cleanup levels are met at the applicable points of compliance. If the remedial action does not comply with cleanup standards, the remedial action is an interim action, not a cleanup action. Where One exception is if a cleanup action involves containment of contaminated soils. In this case, even though with hazardous substance concentrations exceeding cleanup levels at the point of compliance, the cleanup action may be determined to comply with cleanup standards, provided the requirements specified in WAC 173-340-740 (6)(f) 7406(6) are met. <sup>118</sup>

**(3) How to develop remediation levels.** Remediation levels are proposed and evaluated in the feasibility study. Remediation levels may be based on a concentration (e.g., all soil above concentration X 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). <sup>119</sup>

Quantitative or qualitative methods may be used to develop remediation levels. Examples of ways to develop remediation levels include:

(i) Conducting a quantitative human health risk assessment to determine what soil concentrations must be met under likely future land uses (other than residential or industrial) to protect human health;

(ii) Using a fate and transport analysis under WAC 173-340-747 to determine what soil

<sup>117</sup> Editorial changes.

<sup>118</sup> Editorial changes. Deleted language not pertaining to remediation levels.

<sup>119</sup> This provision includes concepts moved up from (4), with additional examples provided. No substantive change is intended.

<sup>115</sup> Editorial changes to re-focus this paragraph on the purpose of remediation levels. The deleted provisions are stated elsewhere in this Section and are duplicative.

<sup>116</sup> Editorial changes.

concentrations will be needed to protect groundwater, assuming a low permeability cap is installed to limit infiltration;

(iii) Conducting a pilot study to determine the technological limitations of a groundwater or soil treatment method; or

(iv) Using a site-specific terrestrial ecological risk assessment to determine what soil concentrations can be capped that will adequately protect plants and animals.

**(3)(4) Examples.** The following examples of cleanup actions that use remediation levels are for illustrative purposes only. All cleanup action alternatives in a feasibility study, including those with proposed remediation levels, must be evaluated to determine whether they meet each of the minimum requirements specified in WAC 173-340-360(2) ~~(see WAC 173-340-360(2)(h)).~~ This evaluation requires, in part, a determination that a more permanent cleanup action is not practicable, based on the disproportionate cost analysis in WAC 173-340-360(3)(e).<sup>120</sup>

**(a) Example of a site meeting soil cleanup levels at the point of compliance.** Assume that the soil cleanup level for a substance at a site is 20 ppm. This means any soil that exceeds the 20 ppm cleanup level at the applicable point of compliance must be remediated in some manner. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360(2) and selected for the site consists of treatment of soil above 100 ppm and removal (to an offsite landfill) of soil above 20 ppm but below 100 ppm. Thus, 100 ppm is a remediation level used to define which soils will be treated and which soils will be removed from the site. ~~soil treatment and removal and a remediation level of 100 ppm to define when those two components are used. Under the cleanup standard, any soil that exceeds the 20 ppm cleanup level at the applicable point of compliance must be remediated in some manner. Under the selected cleanup action, any soil that exceeds the 100 ppm remediation level must be removed and treated. Any soil that does not exceed the 100 ppm remediation level, but exceeds the 20 ppm~~

~~cleanup level, must be removed and landfilled.~~ The cleanup action may be determined to comply with the cleanup standard because the cleanup level is met at the applicable point of compliance.<sup>121</sup>

**(b) Example of a site not meeting soil cleanup levels at the point of compliance.** Assume that the soil cleanup level for a substance at a site is 20 ppm. This means any soil that exceeds the 20 ppm cleanup level at the applicable point of compliance must be remediated in some manner. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360(2) and selected for the site consists of treatment of soil above 100 ppm and containment of any soil above 20 ppm but below 100 ppm. Thus, 100 ppm is a remediation level used to define which soils will be capped and which will be removed from the site. ~~soil treatment and containment and a remediation level of 100 ppm to define when those two components are used. Under the cleanup standard, any soil that exceeds the 20 ppm cleanup level at the applicable point of compliance must be remediated in some manner. Under the selected cleanup action, any soil that exceeds the 100 ppm remediation level must be treated. Any soil that does not exceed the 100 ppm remediation level, but exceeds the 20 ppm cleanup level, must be contained. Residual contamination above the cleanup level will remain at the site. However, assuming Even though contamination above the cleanup level remains at the site, if the cleanup action meets the requirements specified in WAC 173-340-740(6)(f)7406(6) for soil containment actions, the cleanup action may be determined to comply with cleanup standards.~~<sup>122</sup>

**(c) Example of site meeting groundwater cleanup levels at the point of compliance.** Assume that the ground~~water~~-~~water~~ cleanup level at a site is 500 ug/l and that a conditional point of compliance is established at the property boundary. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360(2)

<sup>120</sup> Editorial changes.

<sup>121</sup> Editorial changes.

<sup>122</sup> Editorial changes.

and selected for the site consists of: Removing the source of the ground~~water-water~~ contamination (e.g., removal of a leaking tank and associated soil contamination above the water table); extracting free product and any ground~~water-water~~ exceeding a concentration of 2,000 ug/l; and utilizing natural attenuation to restore the ground~~water-water~~ to 500 ug/l before it arrives at the property boundary. ~~The ground water concentration of 2,000 ug/l constitutes a remediation level because it defines the concentration of a hazardous substance at which different cleanup action components are used. Thus, the groundwater concentration of 2,000 ug/l is a remediation level because it defines what concentrations will be actively treated versus reduced through natural attenuation.~~ As long as the ground~~water-water~~ meets the 500 ug/l cleanup level at the conditional point of compliance (in this case, the property boundary), the cleanup action may be determined to comply with cleanup standards.<sup>123</sup>

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

~~does not constitute a cleanup action because it does not comply with cleanup standards, because the cleanup level is not achieved at the property boundary, since part of the treatment occurs at an off-property water supply well. one of the minimum requirements for cleanup actions in WAC 173-340-360.~~ Consequently, the remedial action is considered an interim action until the cleanup level is attained at the conditional point of compliance (the property boundary).<sup>124</sup>

~~(4) General requirements.~~ Potential remediation levels may be developed as part of the cleanup action alternatives to be considered during the ~~are usually proposed in the feasibility study (see WAC 173-340-350 (8)(c)(i)(D)).~~ These potential remediation levels may be defined as either a concentration or other method of identification of a hazardous substance. Other methods of identification include physical appearance or location (e.g., all of the green sludge will be removed from the northern area of the site). Quantitative or qualitative methods may be used to develop these potential remediation levels. These methods may include a human health risk assessment or an ecological risk assessment. These methods may also consider fate and transport issues. These methods may be simple or complex, as appropriate to the site. Where a quantitative risk assessment is used, see WAC 173-340-357. All cleanup action alternatives in a feasibility study, including those with proposed remediation levels, must still be evaluated to determine whether they meet each of the minimum requirements specified in WAC 173-340-360 (see WAC 173-340-360 (2)(h)).<sup>125</sup>

<sup>123</sup> Editorial changes.

<sup>124</sup> Editorial changes.

<sup>125</sup> Concepts here are incorporated into (3).

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

(1) **Purpose.** A quantitative site-specific risk assessment may be conducted to help determine whether cleanup action alternatives, ~~including those using a remediation level, engineered control and/or institutional control,~~ are protective of human health and the environment. ~~If a quantitative site-specific risk assessment is used, then other considerations may also be needed in evaluating the protectiveness of the overall cleanup action.~~ Methods other than a quantitative site-specific risk assessment may also be used to determine if a cleanup action alternative is protective of human health and the environment.<sup>126</sup>

(2) **Relationship to selection of cleanup actions.** Selecting a cleanup action requires a determination that each of the requirements specified in WAC 173-340-360 is met, including the requirement that the cleanup action is protective of human health and the environment. A quantitative risk assessment conducted under this section may be used to help determine whether a particular cleanup action alternative meets this requirement. A determination that a cleanup action alternative evaluated is protective of human health and the environment meets this one requirement using a quantitative site-specific risk assessment does not mean that the other requirements specified in WAC 173-340-360 have been met.<sup>127</sup>

(3) **Protection of human health.**<sup>128</sup> A quantitative site-specific human health risk assessment may be conducted to help determine whether cleanup action alternatives, ~~including those using a remediation level, engineered control and/or institutional control,~~ are protective of human health, within certain constraints. ~~For the purpose of this assessment, the default assumptions in the standard Method B and C equations in WAC 173-340-720 through 173-340-750 may be modified as provided for under modified Method B and C. In addition to those~~

~~modifications, adjustments to the reasonable maximum exposure scenario or default exposure assumptions may also be made. See WAC 173-340-708 (3)(d) and (10)(b).~~ References to Method C in this subsection apply ~~to a medium~~ only if the particular medium for which the remediation level is being established ~~for~~ qualifies for a Method C cleanup level under WAC 173-340-706.<sup>129</sup>

(a) **Reasonable maximum exposure.** ~~Standard~~ The reasonable maximum exposures and corresponding Method B and C equations in Part VII of 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 uses a remediation level, engineered control, and/or institutional control.

(b) **Exposure parameters.** Exposure parameters ~~for the standard in the~~ Method B and C equations in Part VII of 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 for remediation levels shall be the same as that used for the cleanup level.

(d) **Soil to ground~~water~~-~~water~~ pathway.**<sup>130</sup> The methods specified in WAC 173-340-747 to develop soil concentrations that are protective of ground~~water~~-~~water~~ beneficial uses may also be used during remedy selection to help assess whether the protectiveness to human health of a cleanup action alternative that uses a remediation level, engineered control, and/or institutional control will protect groundwater from further contamination.

(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~~ default reasonable maximum exposures and exposure parameters, or any modification of

<sup>126</sup> Editorial changes to re-focus paragraph on purpose.

<sup>127</sup> Editorial changes.

<sup>128</sup> Editorial changes; language that is similarly restated in (3)(a) and (b) has been deleted, as has language referring to standard and modified Methods B and C.

<sup>129</sup> Changes to (a), (b) & (e) reflect proposal to eliminate “standard” and “modified” terminology.

<sup>130</sup> Editorial changes.

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.**

(i) At active commercial gas stations, where there are retail sales of gasoline and/or diesel, Equations 740-3 ~~and 740-5~~ may be used with the exposure frequency reduced to 0.25 to demonstrate when a cap is protective of the soil ingestion and dermal pathways. This scenario 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. Sites using remediation levels must also use institutional controls to prevent uses that could result in a higher level of exposure and assess the protectiveness for other exposure pathways (e.g., soil vapors and soil to ground ~~water-water~~).<sup>131</sup>

(ii) Equations 740-3 ~~and 740-5~~ may also be modified on a site-specific basis as described in WAC 173-340-740~~2~~ (3)(c).

**(4) Protection of the environment.** A quantitative site-specific ecological risk assessment may be conducted to help determine whether cleanup action alternatives, including those using a remediation level, engineered control and/or institutional control, are protective of the environment.

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<sup>131</sup> Reflects reorganization of Section 740, which results in the deletion of equation 740-5.

### WAC 173-340-360 Selection of cleanup actions.

(1) **Purpose.** This section describes the minimum requirements and procedures for selecting cleanup actions. This section is intended to be used in conjunction with the administrative principles for the overall cleanup process in WAC 173-340-130; the requirements and procedures in WAC 173-340-350 through 173-340-357 and WAC 173-340-370 through 173-340-390; and the cleanup standards defined in Part VII of WAC 173-340-~~700 through 173-340-760~~.

(2) **Minimum requirements for cleanup actions.** All cleanup actions shall meet the following requirements. Because cleanup actions will often involve the use of several cleanup action components at a single site, the overall cleanup action shall meet the requirements of this section. The department recognizes that some of the requirements contain flexibility and will require the use of professional judgment in determining how to apply them at particular sites.

(a) **Threshold requirements.** The cleanup action shall:

- (i) Protect human health and the environment;
- (ii) Comply with cleanup standards (see Part VII of WAC 173-340-~~700 through 173-340-760~~);
- (iii) Comply with applicable state and federal laws (see WAC 173-340-710); and
- (iv) Provide for compliance monitoring (see WAC 173-340-410 and 173-340-720~~0~~ through 173-340-760).

(b) **Other requirements.** When selecting from cleanup action alternatives that fulfill the threshold requirements, the selected action shall:

- (i) Use permanent solutions to the maximum extent practicable (see subsection (3) of this section);
- (ii) Provide for a reasonable restoration time frame (see subsection (4) of this section); and
- (iii) Consider public concerns (see WAC 173-340-600).

(c) **Groundwater-water cleanup actions.**

(i) **Permanent groundwater-water cleanup actions.** A permanent cleanup action shall be used to achieve the cleanup levels for ground water in WAC 173-340-720~~0~~ through 7205 at the standard point(s) of compliance (~~see WAC 173-~~

~~340-720(8))~~ where a permanent cleanup action is practicable or determined by the department to be in the public interest.

(ii) **Nonpermanent groundwater-water cleanup actions.** Where a permanent cleanup action is not required under (c)(i) of this subsection, the following measures shall be taken:

(A) Treatment or removal of the source of the release shall be conducted for liquid wastes, areas contaminated with high concentrations of hazardous substances, highly mobile hazardous substances, ~~or~~ and 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 ground~~water~~-~~water~~ 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.

(B) Ground~~water~~-~~water~~ containment, including barriers or hydraulic control through ground~~water~~-~~water~~ pumping, or both, shall be implemented to the maximum extent practicable to avoid lateral and vertical expansion of the ground~~water~~-~~water~~ volume affected by the hazardous substance and impacts to surface water and sediments.<sup>132</sup>

(C) An alternative water supply or treatment has been provided to impacted water users;

(D) Implementation of institutional controls under WAC 173-340-440 to prevent exposure to contaminated groundwater;

(E) A commitment to provide access and information to facilitate periodic reviews under WAC 173-340-410 until the groundwater is restored to cleanup levels;

(F) Posting of financial assurances under WAC 173-340-440(11) to cover the costs of long term monitoring and operation and maintenance of any treatment or containment system;

(G) Other requirements as specified by the department.

<sup>132</sup> Additions to (B)-(G) reflect requirements in other sections and have been compiled here to provide a comprehensive list of pertinent requirements in one place.

**(d) Cleanup actions for soils at current or potential future residential areas and for soils at schools and child care centers.** For current or potential future residential areas and for schools and child care centers, soils with hazardous substance concentrations that exceed soil cleanup levels must be treated, removed, or contained. Property qualifies as a current or potential residential area if:

(i) The property is currently used for residential use; or

(ii) The property has a potential to serve as a future residential area based on the consideration of zoning, statutory and regulatory restrictions, comprehensive plans, historical use, adjacent land uses, and other relevant factors.

**(e) Institutional controls.**

(i) Cleanup actions shall use institutional controls and financial assurances when required under WAC 173-340-440.

(ii) Cleanup actions that use institutional controls shall meet each of the minimum requirements specified in this section, just as any other cleanup action. Institutional controls should demonstrably reduce risks to ensure a protective remedy. ~~This demonstration should be based on a quantitative scientific analysis where appropriate.~~<sup>133</sup>

(iii) In addition to meeting each of the minimum requirements specified in this section, cleanup actions shall not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or a portion of the site.

**(f) Releases and migration.** Cleanup actions shall prevent or minimize present and future releases and migration of hazardous substances in the environment.

**(g) Dilution and dispersion.** Cleanup actions shall 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.

**(h) Remediation levels.** Cleanup actions that use remediation levels shall meet each of the minimum requirements specified in this section, just as any other cleanup action.

(i) Selection of a cleanup action alternative that uses remediation levels requires, in part, a determination that a more permanent cleanup action is not practicable, based on the disproportionate cost analysis (see subsections (2)(b)(i) and (3) of this section).

(ii) Selection of a cleanup action alternative that uses remediation levels also requires a determination that the alternative meets each of the other minimum requirements specified in this section, including a determination that the alternative is protective of human health and the environment.

**(3) Determining whether a cleanup action uses permanent solutions to the maximum extent practicable.**

**(a) Purpose.** This subsection describes the requirements and procedures for determining whether a cleanup action uses permanent solutions to the maximum extent practicable, as required under subsection (2)(b)(i) of this section. A determination that a cleanup action meets this one requirement does not mean that the other minimum requirements specified in subsection (2) of this section have been met. To select a cleanup action for a site, a cleanup action must meet each of the minimum requirements specified in subsection (2) of this section.

**(b) General requirements.** When selecting a cleanup action, preference shall be given to permanent solutions to the maximum extent practicable. To determine whether a cleanup action uses permanent solutions to the maximum extent practicable, the disproportionate cost analysis specified in (e) of this subsection shall be used. The analysis shall compare the costs and benefits of the cleanup action alternatives ~~evaluated in the feasibility study.~~ The costs and benefits to be compared are the evaluation criteria identified in ~~(f)~~(g) of this subsection.<sup>134</sup>

**(c) Permanent cleanup action defined.** A permanent cleanup action or permanent solution is defined in WAC 173-340-200.

<sup>133</sup> This requirement has not been found to be practical to implement and is proposed for deletion.

<sup>134</sup> Editorial changes.

**(d) Selection of a permanent cleanup action.**

A disproportionate cost analysis shall not be required if the department and the potentially liable persons agree to a permanent cleanup action ~~that will be identified by the department as the proposed cleanup action in the draft cleanup action plan.~~<sup>135</sup>

**(e) Disproportionate cost analysis.** Costs are disproportionate to benefits if the incremental costs of ~~the~~ a higher cost alternative over that of a lower cost alternative substantially exceed the incremental degree of benefits achieved by the higher cost alternative over that of the ~~other~~ lower cost alternative.<sup>136</sup>

**(ii)(f) Disproportionate cost analysis procedure**~~Procedure.~~<sup>137</sup>

~~(A)(i)~~ **(i)** The alternatives evaluated in the feasibility study shall be ranked from most to least permanent, based on the evaluation ~~of the alternatives under (f) of~~ under this subsection and the definition of permanent solution in (c) of this subsection.

~~(B)(ii)~~ **(ii)** The most practicable permanent solution ~~evaluated in the feasibility study~~ shall be the baseline cleanup action alternative against which other cleanup action alternatives are compared. If no permanent solution ~~has been evaluated in the feasibility study~~ remains after initial screening of alternatives under step 3 in WAC 173-340-350(9), the cleanup action alternative ~~evaluated in the feasibility study~~ that provides the greatest degree of permanence shall be the baseline cleanup action alternative.

~~(C)(iii)~~ **(iii)** The comparison of benefits and costs may be quantitative, but will often be qualitative and require the use of best professional judgment. In particular, the department has the discretion to favor or disfavor qualitative benefits and use that information in selecting a cleanup action. Where two or more alternatives are equal in benefits, the

department shall select the less costly alternative provided the requirements of subsection (2) of this section are met.

**(iv) The relevant expectations in WAC 173-340-370 shall be considered in this evaluation process.**<sup>138</sup>

~~(f)(g)~~ **(g) Evaluation criteria.** The following criteria shall be used to evaluate and compare each cleanup action alternative when conducting a disproportionate cost analysis under ~~(e) of~~ this subsection to determine whether a cleanup action is permanent to the maximum extent practicable.

**(i) Costs.** The following costs shall be considered in any evaluation. Only costs related to the proposed remedial actions are to be included in the analysis, not site redevelopment costs.<sup>139</sup>

**(A) Construction costs.** Costs of implementing the alternative such as design, permits and regulatory oversight, construction management, labor, equipment, materials, management of wastes generated by the cleanup, operational costs, analytical costs, regulatory oversight, and quality assurance/quality control.

**(B) Long-term costs.** Long-term costs of the alternative such as the costs of operation and maintenance, monitoring, equipment replacement, permit renewal, regulatory oversight, institutional controls, periodic reviews and financial assurance. The design life of major components of the alternative shall be estimated and, where applicable, the cost of replacement or repair of these components shall be included in the long-term cost estimate. If a present worth analysis is used for future costs, the analysis must consider the inflation of construction and maintenance costs in addition to the rate of return. A conservative (low) rate of return shall be assumed. Inflation shall be estimated using an appropriate construction cost index.<sup>140</sup>

<sup>135</sup> Not all sites (i.e. independent cleanups) have a CAP prepared describing the cleanup. This deletion reflects this.

<sup>136</sup> “Substantial” added to more accurately reflect current use of this test and the intent of 2001 change that replaced “substantial and disproportionate” standard with “disproportionate”. See the 2001 rule responsiveness summary for further discussion. Other changes are editorial.

<sup>137</sup> Editorial changes to (i) and (ii).

<sup>138</sup> Proposed new language to more explicitly bring in the expectations in Section 370 as part of the evaluation process.

<sup>139</sup> Moved from (iii) with additional detail provided.

<sup>140</sup> A conservative rate of return is proposed to reduce the bias towards less permanent remedies such as long term containment. [The following footnote to be included in rule.] Such as the rate of return described in Appendix C of OMB Circular A-92 and the Engineering News Record construction cost inflation index.

**(ii) Protectiveness.** Overall protectiveness of human health and the environment, including the degree to which existing risks are reduced, time required to reduce risk at the facility and attain cleanup standards, on-site and off-site risks resulting from implementing the alternative, and improvement of the overall environmental quality.

**(iii) Permanence.** The degree to which the alternative permanently reduces the toxicity, mobility or volume of hazardous substances, including the adequacy of the alternative in destroying the hazardous substances, the reduction or elimination of hazardous substance releases and sources of releases, the degree of irreversibility of waste treatment process, and the characteristics and quantity of treatment residuals generated.

~~**(iii) Cost.** The cost to implement the alternative, including the cost of construction, the net present value of any long-term costs, and agency oversight costs that are cost recoverable. Long-term costs include operation and maintenance costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls. Cost estimates for treatment technologies shall describe pretreatment, analytical, labor, and waste management costs. The design life of the cleanup action shall be estimated and the cost of replacement or repair of major elements shall be included in the cost estimate.~~<sup>141</sup>

**(iv) Effectiveness over the long term.** Long-term effectiveness ~~includes~~ of the alternative, including the degree of certainty that the alternative will be successful, the reliability of the alternative during the period of time hazardous substances are expected to remain on-site at concentrations that exceed cleanup levels, the magnitude of residual risk with the alternative in place, and the effectiveness of controls required to manage treatment residues or remaining wastes. The following types of cleanup action components may be used as a guide, in descending order, when assessing the relative degree of long-term effectiveness:<sup>142</sup>

[http://www.whitehouse.gov/omb/rewrite/circulars/a094/a94\\_appx-c.html](http://www.whitehouse.gov/omb/rewrite/circulars/a094/a94_appx-c.html)  
<http://www.economics.nrcs.usda.gov/cost/priceindexes/index.html>

or <http://enr.construction.com>.

<sup>141</sup> Moved up to (i).

<sup>142</sup> Reformatted with bullets.

- Reuse or recycling;
- ~~d~~Destruction or detoxification;
- ~~i~~Immobilization or solidification;
- ~~e~~On-site or off-site disposal in an engineered, lined and monitored facility;
- ~~e~~On-site isolation or containment with attendant engineering controls; and
- ~~i~~Institutional controls and monitoring.

**(v) Management of short-term risks.** The risk to human health and the environment associated with the alternative during construction and implementation, and the effectiveness of measures that will be taken to manage such risks.

**(vi) Technical and administrative implementability.** Ability to be implemented including consideration of whether the alternative is technically possible, availability of necessary off-site facilities, services and materials, administrative and regulatory requirements, scheduling, size, complexity, monitoring requirements, access for construction operations and monitoring, and integration with existing facility operations and other current or potential remedial actions.

**(vii) Consideration of public concerns.** Whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This process includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the site.

**(viii) Land use. Compatibility of the proposed remedy with the comprehensive plan and zoning for the site.**<sup>143</sup>

**(ix) Climate change.**<sup>144</sup>

**(A) For long term treatment or containment alternatives at sites located in tidally influenced areas, the potential impacts of the projected rise in**

<sup>143</sup> New criteria added to emphasize that compatibility between the remedy and the local land use plan for the site is an important factor to consider, per advisory group feedback.

<sup>144</sup> Consideration of climate change has been added reflecting directive in Executive Order 09-05.

sea level by the year 2100 due to climate change.<sup>145</sup>

(B) For cleanup action alternatives that are equally permanent to the maximum extent practicable, preference shall be given to that alternative with the least greenhouse gas emissions.<sup>146</sup>

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

**(a) Purpose.** The restoration time frame is the amount of time needed for an alternative to achieve cleanup levels at the point of compliance. This subsection describes the requirements and procedures for determining whether a cleanup action provides for a reasonable restoration time frame, as required under subsection (2)(b)(ii) of this section. A determination that a cleanup action meets this one requirement does not mean that the other minimum requirements specified in subsection (2) of this section have been met. ~~To select a cleanup action for a site, a~~ A cleanup action must meet each of the minimum requirements specified in subsection (2) of this section.<sup>147</sup>

**(b) Factors.** To determine whether a cleanup action provides for a reasonable restoration time frame, the factors to be considered include the following:

- (i) Potential risks posed by the site to human health and the environment;
- (ii) Practicability of achieving a shorter restoration time frame;
- (iii) Current use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site;

<sup>145</sup> Estimated rise varies depending on site location. For Puget Sound, the estimated rise is 8 to 50 inches. See the Climate Impacts Group 2009 report for projections for other areas of WA State. [Footnote to be included in rule.]  
[http://www.ecy.wa.gov/climatechange/scientific\\_forecast2009.htm](http://www.ecy.wa.gov/climatechange/scientific_forecast2009.htm)

<sup>146</sup> See WAC 173-441 for a definition of greenhouse gases. Major greenhouse gases are carbon dioxide, methane, nitrous oxide and fluorinated gases. [Footnote to be added to rule.]

<sup>147</sup> 1<sup>st</sup> sentence moved from (c); 2<sup>nd</sup> change editorial.

(iv) Potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site;

(v) Availability of alternative water supplies;

(vi) Likely effectiveness and reliability of institutional controls;

(vii) Ability to control and monitor migration of hazardous substances from the site;

(viii) Toxicity of the hazardous substances at the site; and

(ix) Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the site or under similar site conditions.

**(c) Adjustment for long term effectiveness.**<sup>148</sup> ~~A longer period of time restoration time frame may be used for the restoration time frame for a site to achieve cleanup levels at the point of compliance~~ if the selected cleanup action ~~selected~~ has a greater degree of long-term effectiveness than a cleanup action that primarily uses on-site or off-site disposal, isolation, or containment ~~options~~.

**(d) Area background.**<sup>149</sup> When area background concentrations (see WAC 173-340-200 for definition) would result in recontamination of the site to levels that exceed cleanup levels, that portion of the cleanup action which addresses cleanup below area background concentrations may be delayed until the off-site sources of hazardous substances are controlled. In these cases the remedial action shall be considered an interim action until cleanup levels are attained.

**(e) Technological limitations.**<sup>150</sup> Where cleanup levels determined under Method C in WAC 173-340-706 are below technically possible concentrations, concentrations that are technically possible to achieve shall be met within a reasonable time frame considering the factors in subsection (b) of this section. In these cases the remedial action shall be considered an interim action until cleanup levels are attained.

<sup>148</sup> Title added for conformity. Text revised somewhat for readability but no substantive change is intended.

<sup>149</sup> Title added for conformity.

<sup>150</sup> Title added for conformity.

(f) Extension of restoration time frame. <sup>151</sup>

Extending the restoration time frame shall not be used as a substitute for active remedial measures, when such actions are practicable.

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<sup>151</sup> Title added for conformity.

**WAC 173-340-370 Expectations for clean-up action alternatives.** The department has the following expectations for the development of cleanup action alternatives under WAC 173-340-350 and the selection of cleanup actions under WAC 173-340-360. These expectations represent the types of cleanup actions the department considers likely results of the remedy selection process described in WAC 173-340-350 through 173-340-360; however, the department recognizes that there may be some sites where cleanup actions conforming to these expectations are not appropriate. Also, selecting a cleanup action that meets these expectations shall not be used as a substitute for selecting a cleanup action under the remedy selection process described in WAC 173-340-350 through 173-340-360.

(1) The department 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, the department 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) The department 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) In order to minimize the potential for migration of hazardous substances, the department 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, the department expects that site runoff will be contained and treated prior to release from the site.

(5) The department expects that when hazardous substances remain on-site at concentrations which exceed 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) The department expects that, for facilities adjacent to a surface water body, active measures will be taken to prevent/minimize releases to surface water via surface runoff and ground~~water~~<sup>water</sup> discharges in excess of cleanup levels. The department expects that dilution will not be the sole method for demonstrating compliance with cleanup standards in these instances.

(7) The department 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) The department expects that cleanup actions conducted under this chapter will not result in a significantly greater overall threat to human health and the environment than other alternatives.

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

**(1) Draft cleanup action plan.** The department shall issue a draft cleanup action plan for a cleanup action to be conducted by the department or by a potentially liable person under an order or decree. The level of detail in the draft cleanup action plan shall be commensurate with the complexity of the site and proposed cleanup action.

**(a)** The draft cleanup action plan shall include the following:

**(i)** A general description of the proposed cleanup action developed in accordance with WAC 173-340-350 through 173-340-390.

**(ii)** A summary of the rationale for selecting the proposed alternative.

**(iii)** A brief summary of other cleanup action alternatives evaluated in the remedial investigation/feasibility study.

**(iv)** Cleanup standards and, where applicable, remediation levels, for each hazardous substance and for each medium of concern at the site. If the default assumptions or reasonable maximum exposure scenarios are altered to derive cleanup standards or to demonstrate the protectiveness of a remedy, those changes shall be clearly identified in the cleanup action plan.<sup>152</sup>

**(v)** The schedule for implementation of the cleanup action plan including, if known, restoration time frame.

**(vi)** Institutional controls, if any, required as part of the proposed cleanup action.

**(vii)** Applicable local, state and federal laws, if any, for the proposed cleanup action, when these are known at this step in the cleanup process (this does not preclude subsequent identification of applicable local, state and federal laws).<sup>153</sup>

**(viii)** A preliminary determination by the department that the proposed cleanup action will comply with WAC 173-340-360.

**(ix)** Where the cleanup action involves on-site containment, specification of the types, levels, and amounts of hazardous substances remaining on

site and the measures that will be used to prevent migration and contact with those substances.

**(b)** ~~For routine sites,~~ The department may use an order or decree to fulfill the requirements of a cleanup action plan, provided that the information in (a) of this subsection is included in ~~an~~ the order or decree.<sup>154</sup> The scope of detail for the required information shall be commensurate with the complexity of the site and proposed cleanup action.

**(2) Public participation.** The department will provide public notice and opportunity for comment on the draft cleanup plan, as required in WAC 173-340-600(13).

**(3) Final cleanup action plan.** After review and consideration of the comments received during the public comment period, the department shall issue a final cleanup action plan and publish its availability in the *Site Register* and by other appropriate methods.

**(4) Failed remedies.**<sup>155</sup> If the department determines, following the implementation of the preferred alternative, that the cleanup standards or, where applicable, remediation levels established in the cleanup action plan cannot be achieved, the department shall issue public notice of this determination and proposed actions to bring the site into compliance.<sup>156</sup>

**(4)(5) Federal cleanup sites.** For federal cleanup sites, a record of decision or order or consent decree prepared under the federal cleanup law may be used by the department to meet the requirements of this section provided:

**(a)** The cleanup action meets the requirements under WAC 173-340-360;

**(b)** The state has concurred with the cleanup action; and

**(c)** An opportunity was provided for the public to comment on the cleanup action.

<sup>152</sup> To facilitate public review of assumptions used in a site-specific risk assessment that are different than the default assumptions.

<sup>153</sup> Applicable laws includes local laws in RCW 70.105D.090.

<sup>154</sup> The concept of routine sites is proposed for deletion. This change would also streamline the remedy selection process by allowing use of an order or decree to fulfill the purpose of a cleanup action plan for all sites.

<sup>155</sup> Title added to conform formatting to other subsections.

<sup>156</sup> To provide the public with an opportunity to also comment on the proposed solution.

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

(1) **Purpose.** The purpose of model remedies is to streamline and accelerate the selection of cleanup actions that protect human health and the environment, with a preference for permanent solutions to the maximum extent practicable.

(2) **Development of model remedies.** The department may, from time to time, identify model remedies for common categories of facilities, types of contamination, types of media, and geographic areas. In identifying a model remedy, the department shall identify the circumstances for which application of the model remedy meets the requirements under WAC 173-340-360. The department shall provide an opportunity for the public to review and comment on any proposed model remedies.

(3) **Applicability and effect of model remedies.** Where a site meets the circumstances identified by the department under subsection (2) of this section, the components of the model remedy may be selected as the cleanup action, or as a portion of the cleanup action. At such sites, it shall not be necessary to conduct a feasibility study under WAC 173-340-350(8) or a disproportionate cost analysis under WAC 173-340-360(3) for those components of a cleanup action to which a model remedy applies.

(4) **Public notice and participation.** Where a model remedy is proposed as the cleanup action or as a portion of the cleanup action, the cleanup action plan is still subject to the same public notice and participation requirements in this chapter as any other cleanup action.

### WAC 173-340-400 Implementation of the cleanup action.

(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 actions ~~are~~ <sup>is</sup> designed, constructed, and operated in a manner that is consistent with: <sup>157</sup>

- (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 procedures described in WAC 173-340-510 and 173-340-515.

(3) Submittal requirements. 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. Documents describing the cleanup action shall comply with the submittal requirements in WAC 173-340-840. <sup>158</sup>

~~(3)~~(4) **Public participation.** During cleanup action implementation, public participation shall be accomplished in a manner consistent with the requirements of WAC 173-340-600.

~~(4)~~(5) **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~~ this means 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~~ simple cleanups and <sup>159</sup> 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 can be summarized and incorporated 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. <sup>160</sup>

(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 ground ~~water~~ water 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:

<sup>157</sup> Editorial changes.

<sup>158</sup> Moved up from subsection (8), with reference to Section 840 added to make it clearer that these submittal requirements apply to the documents in this Section.

<sup>159</sup> Reflects proposed elimination of "routine" cleanups terminology.

<sup>160</sup> Changed to allow cross-referencing other reports to streamline plan preparation.

(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 run-off controls);

(x) Design features to assure long-term safety of workers and local residences (for example, hazardous substances monitoring devices, pressure relief valves, bypass systems, safety cutoffs); <sup>161</sup>

(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 ground ~~water-water~~ 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—environmental~~ <sup>162</sup> 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;

<sup>161</sup> Editorial change.

<sup>162</sup> Reflects new terminology in Chapter 64.70 RCW (UECA), passed in 2007 legislative session.

(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;

(viii) A compliance monitoring plan prepared under WAC 173-340-410 describing monitoring to be performed during construction, and a sampling and analysis plan meeting the requirements of WAC 173-340-820;

(ix) Provisions to assure safety and health requirements of WAC 173-340-810 are met; and

(x) Other information as required by the department.

**(c) Operation and maintenance plan.** An operation and maintenance plan that presents technical guidance and regulatory requirements to assure effective operations under both normal and emergency conditions. The operation and maintenance plan shall include the following elements, as appropriate:

(i) Name and phone number of the responsible individuals;

(ii) Process description and operating principles;

(iii) Design criteria and operating parameters and limits;

(iv) General operating procedures, including startup, normal operations, operation at less than design loading, shutdown, and emergency or contingency procedures;

(v) A discussion of the detailed operation of individual treatment units, including a description of various controls, recommended operating parameters, safety features, and any other relevant information;

(vi) Procedures and sample forms for collection and management of operating and maintenance records;

(vii) Spare parts<sup>s</sup> inventory, addresses of suppliers of spare parts, equipment warranties, and appropriate equipment catalogues;<sup>163</sup>

(viii) Equipment maintenance schedules incorporating manufacturers' recommendations;

(ix) Contingency procedures for spills, releases, and personnel accidents;

(x) A compliance monitoring plan prepared under WAC 173-340-410 describing monitoring to be performed during operation and maintenance, and a sampling and analysis plan meeting the requirements of WAC 173-340-820;

(xi) Description of procedures which ensure that the safety and health requirements of WAC 173-340-810 are met, including specification of contaminant action levels and contingency plans, as appropriate;

(xii) Procedures for the maintenance of the facility after completion of the cleanup action, including provisions for removal of unneeded appurtenances, and the maintenance of covers, caps, containment structures, and monitoring devices; and

(xiii) Other information as required by the department.

~~(5)~~**(6) Permits.** Permits and approvals and any substantive requirements for exempted permits, if required for construction or to otherwise implement the cleanup action, shall be identified and where possible, resolved before, or during, the design phase to avoid delays during construction and implementation of the cleanup action.

~~(6)~~**(7) Construction.** Construction of the cleanup action shall be conducted in accordance with the construction plans and specifications, and other plans prepared under this section.

**(a) Department inspections.**

(i) The department may perform site inspections and construction oversight. The department may require that construction activities be halted at a site if construction or any supporting activities are not consistent with approved plans; are not in compliance with environmental regulations or accepted construction procedures; or endanger human health or the environment.

(ii) The department may conduct a formal inspection of the site following construction and an initial operational shake down period to ensure satisfactory completion of the construction. If such an inspection is performed, the construction documentation report and engineer's opinion

<sup>163</sup> Editorial change.

specified in (b)(ii) of this subsection shall be available before the inspection.

**(b) Construction documentation.**

(i) Except as provided for in (b)(iii) of this subsection, all aspects of construction shall be performed under the oversight of a professional engineer registered in the state of Washington or a qualified technician under the direct supervision of a professional engineer registered in the state of Washington or as otherwise provided for in RCW 18.43.130. During construction, detailed records shall be kept of all aspects of the work performed including construction techniques and materials used, items installed, and tests and measurements performed.

(ii) **As built reports.** At the completion of construction the engineer responsible for the oversight of construction shall prepare as built drawings and a report documenting all aspects of facility construction. The report shall also contain an opinion from the engineer, based on testing results and inspections, as to whether the cleanup action has been constructed in substantial compliance with the plans and specifications and related documents.

(iii) For leaking underground storage tanks, the construction oversight and documentation report may be conducted by an underground storage tank service provider certified under chapter 173-360 WAC. Removal of above ground 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 original financial assurance document

and any procedures for periodic adjustment to the value of the financial assurance mechanism;<sup>164</sup>

(ii) For sites using institutional controls as part of the cleanup action, ~~copies of recorded deed restrictions~~ a copy of the recorded environmental covenant (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)(8) Opportunity for public comment.** If the department determines that any plans prepared under this section represent a substantial change from the cleanup action plan, the department shall provide public notice and opportunity for comment under WAC 173-340-600.

~~(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.~~<sup>165</sup>

**(9) Requirements for managing waste materials generated by site cleanup.** Any soil, sediment, water or waste contaminated by a hazardous substance and generated during cleanup activities must be managed in compliance with applicable local, state and federal laws and any requirements specified by the department. ~~and~~ Materials requiring off-site treatment, storage or disposal, shall be transported to a facility permitted or approved to handle these ~~wastes materials~~.<sup>166</sup>

<sup>164</sup> Reflects current practice.

<sup>165</sup> Moved up to subsection (3).

<sup>166</sup> Modified to include all materials potentially generated by cleanup and to address on-site management of wastes.

### WAC 173-340-410 Compliance monitoring requirements.

(1) **Purpose.** There are three types of compliance monitoring: Protection, performance, and confirmational 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 safety and health 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) **Confirmational 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 safety and health plan. Performance and confirmational 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 per-

formance 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 VII of WAC 173-340-700 through 173-340-760](#). 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:<sup>167</sup>

(i) A description of any statistical or other 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.

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<sup>167</sup> Changed to acknowledge that non-statistical methods may be used for data evaluation (such as direct comparison methods).

**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 and to determine the effectiveness of the environmental covenant and other institutional controls.<sup>168</sup>

*[Deleted existing language in former subsections (2) & (3) and replaced with (2) through (5).]*<sup>169</sup>

**(2) Applicability.**

**(a)** The department shall conduct a periodic review of a site whenever an environmental covenant is required as part of a remedial action conducted under this chapter:<sup>170</sup>

**(i)** By the department;

**(ii)** Under an order, agreed order or consent decree; or

**(iii)** As a condition of a written opinion issued under RCW 70.105D.030.

**(b)** The department may conduct periodic reviews as resources permit:<sup>171</sup>

**(i)** Where an institutional control other than an environmental covenant is established at a facility;

**(ii)** Where an institutional control (including an environmental covenant) is established at a facility that has conducted an independent remedial action not submitted for review under the department's voluntary cleanup program (WAC 173-340-515(5));

**(iii)** Where the cleanup level is based on a practical quantitation limit as provided for under WAC 173-340-707;

**(iv)** Where, in the department's judgment, additional review is necessary to assure long-term protection of human health and the environment due to:

**(A)** Modifications to the default equations or assumptions in this chapter using site-specific information that would significantly increase the concentration of hazardous substances remaining at the site after cleanup;

**(B)** Uncertainty in the ecological evaluation; or

**(C)** Uncertainty in the reliability of the cleanup action.

**(3) Timing of periodic review.** If a periodic review is required under subsection (2) of this section, a review shall be conducted by the department at the following times:<sup>172</sup>

**(a)** At least once every five years after an environmental covenant has been recorded;

**(b)** If an institutional control other than an environmental covenant is required at the site by an order, agreed order or consent decree, or as a condition of a written opinion issued under WAC 173-340-515, at least once every five years after implementation of the institutional control;

**(c)** If the environmental covenant is not recorded or other institutional control is not implemented, at least once every five years after the environmental covenant or institutional control was required at the site by an order, agreed order or consent decree, or as a condition of a written opinion issued under WAC 173-340-515(5); and

**(d)** Where the department has determined that a periodic review is required under subsection (2)(b) of this section and the site is not subject to an environmental covenant or other institutional control, at least once every five years after the cleanup has been approved by the department or a written opinion was issued under RCW 70.105D.030.

<sup>168</sup> Use of "environmental covenant" throughout this Section reflects new terminology in Chapter 64.70 RCW, passed in 2007 legislative session. "Institutional controls" has been added to the statutory language throughout this section since not all such controls are in the form of an environmental covenant.

<sup>169</sup> Several subsections have been extensively reorganized and revised. It is shown as new language to facilitate review. Substantive changes are identified in the footnotes.

<sup>170</sup> Under RCW 70.105D.030(7) Ecology must now conduct periodic reviews of all formal oversight sites and VCP sites with environmental covenants. (a) changed to reflect this.

<sup>171</sup> (b) Provides Ecology with the option of conducting periodic reviews as resources permit at sites not required by the statute. (i) addresses sites using alternate mechanisms. (ii) addresses sites with independent remedial actions not conducted under Ecology's voluntary cleanup program. (iii) & (iv)(A)-(C) are existing provisions with editorial changes.

<sup>172</sup> Based on RCW 70.105D.030(7). (b), (c) and (d) are added to meet legislative intent of RCW 70.105D.030(7), even though a covenant technically hasn't been recorded.

**(4) Periodic reviews by the Environmental Protection Agency.** The department may rely on periodic reviews conducted by the United States Environmental Protection Agency to fulfill the requirements in this chapter. Before accepting these periodic reviews, the department must determine that an opportunity has been provided for public review and comment comparable to that required under subsection (7) of this section.<sup>173</sup>

**(5) Periodic review contents.** The department may require persons responsible for maintaining the remedy to submit information needed by the department to conduct a periodic review. A periodic review shall include at least the following elements.<sup>174</sup>

(a) A review of relevant reports on file with the department documenting conditions at the site after cleanup and relevant decision documents (e.g. consent decree, order, cleanup action plan or no further action determination) to determine if any conditions have been violated.

(b) A review of the title of the real property subject to an environmental covenant to determine whether the environmental covenant was properly recorded and, if applicable, amended or terminated. Where the institutional control is implemented through other administrative mechanisms, this review would consist of a review of those other mechanisms.

(c) A physical inspection of the site, including the property subject to the environmental covenant, to determine:

(i) Compliance with the environmental covenant and other institutional controls, including whether any development or redevelopment of the real property has violated the terms of the

<sup>173</sup> Through agreement with Ecology, EPA conducts periodic reviews at many superfund sites. This new provision is to acknowledge EPA's role at these sites and to avoid duplication of effort by Ecology while at the same time recognizing the importance of providing an opportunity for public review and comment.

<sup>174</sup> New provision describing the contents of a periodic review. This is based on RCW 70.105D.030(7) and current practice. The opening statement is intended to reflect that information may be needed from others than just PLPs (such as, statutorily exempt owners, successors in interest, and VCP customers).

environmental covenant or other institutional controls; and,

(ii) The condition of any active remediation systems, containment and monitoring systems, and any other cleanup requirements.

(d) A review of the effectiveness of the environmental covenant and other institutional controls in limiting or prohibiting activities that may interfere with the integrity of the remedial action or that may result in exposure to or migration of hazardous substances. This shall include a review of available monitoring data.

(e) A review of any financial assurance mechanisms required by the department under this chapter.

(f) A review of the effectiveness of the remedy in protecting human health and the environment.

**(4)(6) 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 environmental covenants and other 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; ~~and~~

(g) New information about the site that presents a previously unknown threat to human health or the environment.<sup>175</sup>

**(5)(7) Notice and public comment.** The department shall publish a notice of all periodic reviews in the *Site Register* and provide an opportunity for public comment. The department

<sup>175</sup> Based on current practice.

shall also notify all potentially liable persons known to the department of the results of the periodic review. A final report of the periodic review shall not be issued until the public comment period has been completed.<sup>176</sup>

~~(6)(8) Determination of whether amendment of the cleanup action plan required.~~ When action by the department is required.<sup>177</sup>

~~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 opportunities for public review and comment on the draft cleanup action plan in accordance with WAC 173-340-380 and 173-340-600.~~

(a) When the department determines that any of the following conditions exists, the department shall take any and all appropriate actions:

(i) The environmental covenant or other institutional control has not been recorded or otherwise established;

(ii) The environmental covenant or other institutional control has been amended or terminated without proper authority;

(iii) The terms of the environmental covenant or other institutional control have been violated;

(iv) The environmental covenant or other institutional control is no longer effective in limiting or prohibiting activities that may interfere with the integrity of the remedial action or that may result in exposure to or migration of hazardous substances; or

(v) One or more requirements in an order or decree or written opinion issued under RCW 70.105D.030 have been violated.

<sup>176</sup> Reflects current practice at most sites. Consistent with MTCA's intent of meaningful public involvement.

<sup>177</sup> New subsection replacing existing (6) and based on RCW 70.105D.030(7) and current practice. Ecology interaction with the PLP and public depends on the nature of the violation and enforcement action and thus is not specifically addressed. For example, if an order was amended, the normal notification procedures for order amendments would be followed.

(b) This subsection is not intended to limit the department's ability to take action under any other circumstances allowed under the act.

~~(7)(9)~~ **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)~~(6) of this section. Sites with institutional controls shall remain subject to periodic reviews as long as the institutional controls are required under this chapter.

(10) Cost recovery. A periodic review is a remedial action under this chapter. The department may require payment of the costs for periodic reviews under WAC 173-340-550.<sup>178</sup>

<sup>178</sup> New provision to clarify that periodic review costs are cost recoverable under this chapter. Ecology's current practice is to recover these costs at only formal process sites (sites under an order or decree), not VCP sites. However, this language doesn't preclude future cost recovery at VCP sites, should the workload warrant cost recovery at these sites.

**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. Run-off 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 run-off, and removing the product puddled on the ground and floating on the water table. Further studies would then determine what additional soil and ground water 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 procedures described in WAC 173-340-510 and 173-340-515.

**(6) Public participation.** Public participation will be accomplished in a manner consistent with WAC 173-340-600.

**(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, 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 safety and health plan meeting the requirements of WAC 173-340-810; and

(f) 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.**<sup>179</sup> Institutional controls are measures undertaken to limit or prohibit activities or uses of real property or resources that may interfere with the integrity of ~~an interim action or cleanup~~ a remedial action or that may result in exposure to hazardous substances at a site. Institutional controls may also include affirmative obligations to ensure continued protection of human health and the environment. Examples of institutional controls include:<sup>180</sup>

~~(a) Physical measures such as fences;~~

~~(b) Use restrictions such as limitations on the Limitations on activities or uses of the property or resources; or~~

~~(b)~~ Requirements that additional remedial actions occur if conditions change on the property (such as disturbing or removing existing structures or pavement) ~~are disturbed or removed;~~

(c) Operation and maintenance requirements for engineered controls such as fences, the inspection and repair of monitoring wells, treatment systems, caps or ground~~water~~water barrier systems;

~~(d)~~ Periodic reporting requirements;

~~(d)(e)~~ 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)(f)~~ Financial assurances (see subsection ~~(11)~~(12) of this section).

<sup>179</sup> 1<sup>st</sup> change: RCW 64.70 (Uniform Environmental Covenants Act or UECA) uses the term “activity and use limitations” to describe restrictions in environmental covenants. That phrase has been used throughout this section. Resource uses that could be restricted include limitations on the use of groundwater.

2<sup>nd</sup> change: Under UECA, institutional controls may be applied at any stage of the remedial action process, not just interim actions or cleanup actions. This change reflects that.

3<sup>rd</sup> change: Under UECA, institutional controls are not just a negative burden on a property; they may also require compliance with certain “affirmative obligations”. This change reflects that.

<sup>180</sup> Deleted (a) as fences are not considered institutional controls. Editorial changes to (a), (b) and (c). Added (d) to reflect current practice.

(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 in WAC 173-340-510 and 173-340-515.

(4) **Circumstances required.** Institutional controls ~~shall be~~ are 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:<sup>181</sup>

(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-~~745-7400~~;

(d) A ground~~water~~water cleanup level that exceeds the potable ground~~water~~water cleanup level is established using a site-specific risk assessment under WAC 173-340-~~720(6)(e)-7203~~ and institutional controls are required under WAC 173-340-720(6)(e)(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) When such controls are required by WAC 173-340-7406(6) for a soil containment remedy;<sup>182</sup>

<sup>181</sup> Editorial change. Language already addressed in (i); cross-references in (c), (d) and (f) changed to reflect reorganization of other sections of the rule.

<sup>182</sup> Not a new requirement. Added to provide consistency between Sections.

(h) When required under WAC 173-340-3500:  
or

(i) 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 remedial~~ action.

**(5) Minimum requirements.** Cleanup actions that use institutional controls shall meet each of the minimum requirements specified in WAC 173-340-360, just as any other cleanup action. Institutional controls should demonstrably reduce risks to ensure a protective remedy. ~~This demonstration should be based on a quantitative, scientific analysis where appropriate.~~<sup>183</sup>

**(6) Requirement for Limit on primary reliance.** In addition to meeting each of the minimum requirements specified in WAC 173-340-360, cleanup actions shall not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or a portion of the site.<sup>184</sup>

**(7) Periodic review.** The department shall review compliance with institutional controls ~~requirements~~ as part of periodic reviews under WAC 173-340-420.

**(8) Format of institutional controls.**

**(a) PLP owned property.** Except as otherwise provided for in this section, ~~For properties for real property~~ 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 70.105D.040~~ the act 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.~~ institutional controls shall take the form of an environmental covenant on the property

<sup>183</sup> This provision has not been found to be practical to implement and is proposed to be removed.

<sup>184</sup> Editorial changes to (6) and (7).

meeting the requirements in subsection (9) of this section.<sup>185</sup>

**(b) Alternative mechanisms for certain governmental entities.** For ~~properties~~ real property owned by a local, state, or federal government entity ~~a restrictive~~ an environmental covenant may not be required if that entity demonstrates to the department 's satisfaction that:<sup>186</sup>

**(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 or the real property consists of an easement or right of way for public street or public utility purposes; and<sup>187</sup>

**(ii)** It will implement an effective alternative system to meet the substantial equivalent of the requirements of subsection (9) of this section.<sup>188</sup>

**(iii)** The department shall require the government entity to implement the alternative system ~~as part of the cleanup action plan.~~ under an order or decree or other enforceable mechanism approved by the department; and<sup>189</sup>

**(iv)** 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~~ an environmental covenant complying with subsection (9) of this section upon transfer if any of the conditions in subsection (4) of this section still exist.<sup>190</sup>

**(c) Alternative mechanisms for property owned by persons not potentially liable.** For ~~properties containing hazardous substances~~ real property interests within the site where the owner

<sup>185</sup> Changed to reflect new terminology under UECA (RCW 64.70). The deleted language is addressed in that Act and subsection (11) and does not need to be repeated here.

<sup>186</sup> Editorial changes.

<sup>187</sup> To provide an alternative mechanism for rights of ways and easements, where filing of individual covenants may not always be practical.

<sup>188</sup> Not all elements of (9) may be necessary or appropriate, especially with public ROWs.

<sup>189</sup> Requirements cannot be imposed through a cleanup action plan; changed to reflect this and clarify that Ecology must be able to enforce implementation of the alternative mechanism.

<sup>190</sup> Editorial changes.

does not meet the criteria ~~in RCW 70.105D.040 in the act~~ for being a potentially liable person, the department may approve ~~cleanup actions that include restrictive covenants or other of institutional controls implemented through~~ legal and/or administrative mechanisms other than an environmental covenant. ~~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.~~ <sup>191</sup>

(i) A potentially liable person must make a good faith effort to obtain ~~a restrictive~~ an environmental covenant for these properties before ~~using the department will approve of~~ other legal or administrative mechanisms under this provision. <sup>192</sup>

(ii) Examples of such legal or administrative mechanisms include special building code requirements, zoning overlays, placing notices in local zoning or building department records or state lands records, public notices and educational mailings. <sup>193</sup>

**(9) Restrictive covenants. Environmental covenant contents.**

*[Delete existing language and replace with the following.]* <sup>194</sup>

Where required, an environmental covenant shall comply with Chapter 64.70 RCW. Unless waived in writing by the department, the environmental covenant shall be in a form approved by the department and include at a minimum the following provisions: <sup>195</sup>

<sup>191</sup> Editorial changes. PLP criteria are contained in RCW 70.105D.020, in addition to 70.105D.040. Deleted language is repetitive and unnecessary.

<sup>192</sup> Editorial changes.

<sup>193</sup> Mostly editorial changes. Special building codes requirements could include, for example, a requirement to use metal water pipe (rather than plastic) in an area of petroleum contamination or the installation of foundation venting systems in areas of vapor contamination.

<sup>194</sup> This subsection has been extensively reorganized and revised. It is shown as new language to facilitate review. See the footnotes for additional explanation.

<sup>195</sup> A model covenant can be obtained by contacting the department. *[Footnote to be added to rule.]* (a) through (f)

(a) State that the document is an environmental covenant executed pursuant to Chapter 64.70 RCW;

(b) Contain a legally sufficient description of the real property subject to the covenant;

(c) Designate the department, or other person approved by the department, as the holder of the covenant;

(d) Be signed by the department, every holder, and, unless waived by the department, every owner of a fee simple interest in the real property subject to the covenant;

(e) Identify the name and location of the administrative record for the property subject to the environmental covenant;

(f) Describe with specificity the activity or use limitations and affirmative obligations on the real property subject to the covenant. At a minimum, this shall prohibit uses and activities:

(i) That are inconsistent with the exposure assumptions and uses and activities on which the remedial action is based;

(ii) That may interfere with the remedial action, including operation and maintenance, monitoring, or other measures necessary to assure the integrity of the remedial action and continued protection of human health and the environment; and,

(iii) That may result in the release of a hazardous substance that was contained as a part of the remedial action or otherwise exacerbate exposures;

(g) Require notice to and approval by the department of any proposal to: <sup>196</sup>

(i) Apply for a change in the zoning or comprehensive land use plan for the property;

(ii) Apply for a building permit, site work, or other authorization that could disrupt or otherwise affect the contamination on the property subject to the covenant; or <sup>197</sup>

are based on required provisions in UECA; other provisions are based on optional UECA requirements.

<sup>196</sup> (i) and (ii) are added to provide more specific criteria for when Ecology needs to be notified.

<sup>197</sup> Examples include: a grading permit to alter the land surface within areas of the property containing buried waste materials or contaminated soil; a building permit for a new structure or to change the footprint of an existing structure;

(iii) Allow an activity or use of the property that is inconsistent with the environmental covenant.

(iv) If the department, after public notice and comment approves the proposal, the environmental covenant shall, if the department determines necessary, be amended to reflect the change;

(h) Require maintenance of clear access to remedial action components such as treatment systems and monitoring devices;

(i) Grant the department and its designated representatives the right to enter the property at reasonable times for the purpose of evaluating compliance with the environmental covenant and this chapter, including the right to take samples, inspect any remedial actions taken at the site and to inspect related records;

(j) Require that the transfer of any real property interest subject to the covenant, including leases, provides for:

(i) Adequate and complete provision for the continued operation, maintenance and monitoring of the remedial action;

(ii) Restricting uses and activities to those consistent with the environmental covenant;

(iii) Continued compliance with the environmental covenant;

(iv) Notice to the department of the transfer within thirty (30) days of the transaction.

(v) Providing the department with a complete copy of the executed agreement, should the department request one; and

(vi) Requiring the instrument transferring the interest contain the following notice:

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO [GRANTEE] ON [DATE] AND RECORDED WITH THE [COUNTY] COUNTY AUDITOR UNDER RECORDING NUMBER [RECORDING NUMBER]. ANY PERSON USING THIS PROPERTY MUST COMPLY WITH THAT COVENANT. A COMPLETE COPY OF THE ENVIRONMENTAL COVENANT IS ATTACHED TO THIS AGREEMENT.

(vii) The requirements in (iv), (v) and (vi) of this provision do not apply to instruments

approval to install or alter underground utilities or storm water facilities; and, authorization under Chapter 18.104 RCW to construct a well. [Footnote to be included in rule.]

conveying leases for uses or activities which are unlikely to lead to exposure to the contamination;<sup>198</sup>

(n) The department may also require the environmental covenant to include:<sup>199</sup>

(i) A subordination agreement with holders of other real property interests within the site to ensure compliance with the covenant by all persons holding a real property interest;<sup>200</sup>

(ii) A description of the types, locations and extent of hazardous substances remaining on the property, the pathways of exposure and the remedy;

(iii) Requirements for periodic inspections, monitoring and reporting demonstrating compliance with the covenant;

(iv) Limitations on amendment or termination of the covenant in addition to those contained in RCW 64.70.090 and 64.70.100;

(v) Identify rights of the holder in addition to its right to enforce the covenant pursuant to RCW 64.70.110;

(vi) A requirement to reimburse the department for costs related to implementation of the environmental covenant; and

(vii) Other information, restrictions or requirements, required by the department.

**(10) Environmental covenant procedural requirements.**<sup>201</sup>

(a) Prior to filing an environmental covenant, a title search shall be conducted to identify all persons with a real property interest in the property subject to the covenant. Unless waived in writing by the department, the title search shall be conducted within six months prior to recording the covenant for all parcels of real property subject

<sup>198</sup> Such as upper floor tenants, or tenants within a shopping mall that don't have access to areas where contamination is present.

<sup>199</sup> All of these fall within the scope of optional requirements allowed under UECA.

<sup>200</sup> Subordination agreements are recognized under RCW 64.70.030(c). An example of when subordination of another real property interest would be appropriate is where a buried pipeline crosses a capped site. Limitations on digging into the site would need to apply to both the property owner and the pipeline easement owner.

<sup>201</sup> New subsection addressing procedures based on UECA and current practice.

to the covenant. The department shall be provided with a copy of this title search;<sup>202</sup>

(b) An environmental covenant shall be recorded in every county in which any portion of the real property subject to the environmental covenant is located, following the procedures in Chapter 64.70 RCW and any other applicable laws.<sup>203</sup>

(c) Once an environmental covenant has been executed, an original signed copy of the recorded covenant shall be sent to the department. In addition, as required by RCW 64.70.070, a copy of the environmental covenant shall be provided in the manner required by the department to the following persons:

(i) Each person that signed the covenant;

(ii) Each person holding a recorded interest in the real property subject to the covenant;

(iii) Each person in possession of the real property subject to the covenant at the time the covenant is executed;

(iv) Each municipality, city or county land use planning authority, and other unit of local government in which real property subject to the covenant is located;

(v) Any other person the department requires.

**(10)(11) Local government notification.**<sup>204</sup>

~~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. Prior to imposing institutional controls at a site, the department shall consult with the city or county land use planning authority for the site. In determining the appropriateness of proposed institutional controls, the department shall consider potential~~

redevelopment and revitalization opportunities, information regarding present and proposed land and resource uses, the comprehensive land use plan and zoning provisions applicable to the site and other factors identified in the consultation process. For independent cleanups remedial actions reviewed by the department under WAC 173-340-515 that use restrictive covenants institutional controls, the person conducting the cleanup remedial actions shall be responsible for these notifications.

~~(11)(12) 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 where active operation or regular maintenance of remedial action components is required (e.g. engineered caps, groundwater treatment systems, soil or groundwater containment systems and, active gas control systems), 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.<sup>205</sup>

[Delete existing language in (a) and replace with the following.]<sup>206</sup>

(a) Financial assurance mechanisms may include one or more of the following: A trust fund, a surety bond, a letter of credit, insurance, corporate financial test, standby trust fund, government financial test, government fund, or other similar financial assurance mechanisms allowed under another applicable law (for example, requirements for solid waste landfills or

<sup>202</sup> To ensure all real property interests are identified and addressed.

<sup>203</sup> Reflects current practice. Examples of "other laws" are state and local government procedures for recording covenants.

<sup>204</sup> Reflects new requirement in RCW 70.105D.030(1)(f). In the spirit of this provision, this includes consultation for all institutional controls, not just covenants.

<sup>205</sup> The presumption changed to focus financial assurance on sites with active post-cleanup requirements. The deleted language has been replaced with specific criteria in (b) on how to determine the amount of financial assurance and how to demonstrate sufficient financial resources are available.

<sup>206</sup> This subsection has been extensively revised. It is shown as new language to facilitate review. See the footnotes for additional explanation.

hazardous waste treatment, storage, and disposal facilities) that meets the requirements of this section.

(b) The amount of the financial assurance mechanism shall be based on an estimate, in current dollars, of the costs to hire a third party to operate, maintain, monitor, and periodically review the cleanup conducted at the site. The department may also require the cost of contingent remedial actions be included in the amount of financial assurance required. A third party is a party who is not a potentially liable person for the site and neither a parent nor a subsidiary of the person posting the financial assurance. Unless waived by the department, the financial assurance must meet the following requirements:<sup>207</sup>

(i) The cost estimate and financial assurance instruments must be updated annually for inflation and based on actual costs incurred within 60 days prior to the anniversary date of the establishment of the financial assurance instrument(s).

(ii) Where discounting of future costs is allowed by the department to determine the amount of financial assurance required, the analysis must consider the inflation of construction and maintenance costs in addition to the rate of return. A conservative (low) rate of return shall be assumed to insure sufficient funds will be available, should they be needed. Inflation shall be estimated using an appropriate construction cost index.<sup>208</sup>

(c) The financial assurance mechanisms provided for under provision (12)(a) of this section shall meet the following requirements:

(i) Trustees shall be an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal agency or an agency of the state in which the fund is established.

<sup>207</sup> The requirements in (b) and (c) are based on federal and state requirements for hazardous waste facilities and underground storage tanks.

<sup>208</sup> Such as the rate of return described in Appendix C of OMB Circular A-92 and the Engineering News Record construction cost inflation index.

[http://www.whitehouse.gov/omb/rewrite/circulars/a094/a94\\_appx-c.html](http://www.whitehouse.gov/omb/rewrite/circulars/a094/a94_appx-c.html)

<http://www.economics.nrcs.usda.gov/cost/priceindexes/index.html>

or <http://enr.construction.com>. *[Footnote to be included in rule.]*

(ii) Surety companies issuing a bond shall be among those listed as acceptable sureties on federal bonds in the latest Circular 570 of the U.S. Department of the Treasury.

(iii) The issuing institution for a letter of credit shall have authority to issue letters of credit in Washington State and will be an institution whose letter-of-credit operations are regulated and examined by a federal or state agency.

(iv) Insurance companies providing financial assurance must meet the financial rating requirements in WAC 173-303-620.

(v) Corporations using a financial test must have a minimum tangible net worth of 20 million dollars.

(vi) Governments using a financial test must have a current Moody's bond rating of Aaa, Aa1, Aa2, Aa3, A1 or A2 or Standard and Poor's bond rating of AAA, AA+, AA, AA-, A+ or A. Where a local government has multiple outstanding issues, the most recent rating shall be the rating used to determine eligibility.

(vii) If a government fund is used to demonstrate financial assurance, the fund must identify currently available funds that are being held in reserve and sources of future dedicated funds to be used to demonstrate financial assurance.

(viii) The wording of financial assurance instruments must meet the relevant requirements in WAC 173-303-620(10).

(ix) The original financial assurance instrument shall be submitted to the department.

~~(b)(c)~~ **Exemption from requirement.** The department shall not require financial assurances, or may adjust the amount of financial assurance, if persons conducting the cleanup can demonstrate to the department 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.<sup>209</sup>

~~(12)(13)~~ **Removal Amendment or termination of restrictions.** If the conditions at the site requiring an institutional control under subsection (4) of this section have changed or no

<sup>209</sup> Editorial changes.

longer exist, then the owner may submit a request to the department that the ~~restrictive covenant or other restrictions~~ institutional control be amended or eliminated. The ~~restrictive covenant or other restrictions~~ institutional control shall be ~~removed,~~ amended or terminated if the department, after public notice and opportunity for comment, concurs. Environmental covenants executed under Chapter 64.70 must also follow the procedures in Chapter 64.70 RCW for amendment or termination of those covenants. <sup>210</sup>

**(14) Cost recovery.** The implementation of institutional controls is a remedial action under this chapter. The department may require payment for its cost of implementation of institutional controls under WAC 173-340-550. This includes, for example, approval of institutional controls, changes in property uses or activities allowed under an institutional control, requests to amend or terminate an environmental covenant under Chapter 64.70 RCW, and annual review and approval of financial assurances. <sup>211</sup>

**(15) Effect of nonconforming institutional controls.** Environmental covenants, restrictive covenants, deed restrictions, financial assurances, and other institutional controls established prior to [effective date] that are not in the exact form or content specified in this section are not intended to be made invalid or unenforceable by any changes to this section. <sup>212</sup>

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<sup>210</sup> Editorial and other changes to conform to RCW 64.70.

<sup>211</sup> New subsection to clarify that costs of implementing institutional controls are cost recoverable under this chapter, and reflects current practice.

<sup>212</sup> New subsection to clarify the status of nonconforming covenants. The actual effective date of the amendments to this Section will be inserted in the final rule.

**WAC 173-340-450 Releases from underground storage tanks.**

*Under consideration: Deletion of this Section and replacement with revised language in the UST rule. The revisions would address several key issues that have emerged at UST sites including:*

- *Well installation criteria for confirmed releases.*
- *Criteria for when an RI/FS must be conducted.*
- *Deadlines for conducting an RI/FS.*

**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 under~~ RCW 70.105D.020(21)(8),<sup>213</sup> unless an emergency requires otherwise. Persons will be notified when the department has credible evidence of their potential liability under RCW 70.105D.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 thirty 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.

<sup>213</sup> Reflects change in numbering in statute.

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

(1) **Policy.** It is the responsibility of each and every liable person to conduct remedial action so that sites are cleaned up well and expeditiously where a release or threatened release of a hazardous substance requires remedial action. Potentially liable persons are encouraged to initiate discussions and negotiations with the department and the office of the attorney general that may lead to an agreement on the remedial action to be conducted with the state of Washington. The department may provide informal advice and assistance on the development of proposals for remedial action, as provided by WAC 173-340-515. Any approval by the department or the state of remedial action shall occur by one of the means described in subsections (2) and (3) of this section.

(2) **Actions initiated by the potentially liable person.** Potentially liable persons may initiate a remedial action, as follows:

(a) A person may initiate negotiations for a consent decree by submitting a letter under WAC 173-340-520(1).

(b) A person may request an agreed order by submitting a letter under WAC 173-340-530.

(3) **Action initiated by the department.** The department may initiate remedial action by:

(a) Issuing a letter inviting negotiations on a consent decree under WAC 173-340-520(2); or

(b) Requesting an agreed order under WAC 173-340-530; or

(c) Issuing an enforcement order under WAC 173-340-540.

(4) **Department remedial action.** Nothing in this chapter shall preclude the department from taking appropriate remedial action on its own at any time. Except for emergency actions and initial investigations, reasonable effort will be made to notify potentially liable persons before the department takes remedial actions for which the recovery of public funds can be sought under RCW 70.105D.050(3).

### WAC 173-340-515 Independent remedial actions.<sup>214</sup>

(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 this chapter 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 this chapter.

(c) Except for the requirement of ~~a restrictive~~ an environmental covenant under WAC 173-340-440, where documents are required under this chapter, 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) Any person who conducts an independent interim action or cleanup action for a release that is required to be reported under WAC 173-340-300 shall submit a written report to the department within ninety days of the completion of the action.

(i) For the purposes of this section, the department will consider an interim action or cleanup action complete if no remedial action other than compliance monitoring has occurred at the site for ninety days.

(ii) ~~This does not~~ The reporting deadlines in this subsection do not preclude earlier reporting of such actions or reporting of site investigations.

(iii) See WAC 173-340-450 for additional requirements for reporting independent remedial actions for releases from underground storage tanks.

(b) The report shall include the information in WAC 173-340-300(2) if not already reported, and enough information to determine if the independent remedial action meets the substantive requirements of this chapter, including, the results of all site investigations, cleanup actions and compliance monitoring planned or underway. If ~~a restrictive~~ an environmental covenant is used, it must be included in the report and it must meet the requirements specified in WAC 173-340-440(9). The department may require additional reports on the work conducted.

(c) If the independent interim action or cleanup action is completed within ninety days of discovery, a single written report may be submitted on both the release and the action taken. The report shall contain the information specified in provision (b) of this subsection and shall be submitted within ninety days of completion of the remedial action.

<sup>214</sup> Changes in this Section are editorial unless otherwise noted.

(d) The department shall publish in the *Site Register* a notice of all reports on independent interim actions and cleanup actions received under this section. If deemed necessary, the department shall also conduct an initial investigation under WAC 173-340-310. Neither submission of information on an independent remedial action nor any response by the department shall release the person submitting the report or any other person from liability. The department reserves all rights to pursue any subsequent action it deems appropriate.

**(5) ~~Technical consultations.~~**

*[Delete the existing language and replace with the following.]*<sup>215</sup>

**Voluntary cleanup program.** The department may provide informal advice and assistance on the administrative and technical requirements of this chapter to persons conducting or otherwise interested in an independent remedial action. This advice and assistance may be provided for the site as a whole or a portion of the site, generally no smaller than a tax parcel or easement.

**(a) Response to application.** After receipt of a request for assistance, the department shall determine whether it is appropriate to provide advice and assistance under the department's voluntary cleanup program and send a written response to the applicant. The response shall acknowledge receipt of the request and either reject or accept the application. The department will generally reject applications:

(i) That request a liability determination or allocation of liability;

(ii) That request a substantial equivalence determination;

(iii) For sites more appropriately handled under an order or decree to provide for greater department oversight of the remedial actions; and

(iv) For other reasons explained in the letter rejecting the application.

Applicants accepted by the department will be required to enter into an agreement with the department governing the conditions of the advice and assistance ("voluntary cleanup program contract").

**(b) Department response.** 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 on whether a proposed remedial actions is likely to meet the substantive requirements of this chapter;

(ii) Provide a written opinion indicating that completed remedial actions for the site as a whole or a portion of the site (generally no smaller than a tax parcel or easement) meet the substantive requirements of this chapter. Written opinions for a portion of a site must also provide an opinion on the status of the site as a whole;

(iii) Provide a written opinion indicating further remedial action is necessary; or

(iv) Provide another response as appropriate for the situation.<sup>216</sup>

**(c) Effect of response.** Such advice or assistance, including written opinions, is advisory only, not binding on the department, and is subject to the other limitations in RCW 70.105D.030(1)(i). The advice or assistance, including written opinions does not:<sup>217</sup>

(i) Change the boundaries of the site;

(ii) Resolve or alter a person's liability under this chapter;

(iii) Provide protection from third party contribution claims; or

(iv) Constitute a determination that the independent remedial action is the substantial equivalent of a department conducted or department-supervised remedial action. Only the courts can make this determination.

**(d) Rescinding opinions.** The department may rescind an opinion under the following circumstances:<sup>218</sup>

<sup>215</sup> This subsection has been substantially revised, reflecting changes to RCW 70.105D.030(1)(i) in 2007 legislative session and current practice. It is shown as new language to facilitate review. See the footnotes for additional explanation.

<sup>216</sup> Such as the current "partial sufficiency" letter or termination of contract.

<sup>217</sup> Reflects statutory limitations.

<sup>218</sup> Provisions (d), (e) and (f) reflect current practice.

(i) Previously undisclosed or new information comes to light indicating the opinion is no longer valid;

(ii) Conditions in the opinion were not fulfilled or are no longer being complied with; and,

(iii) The department makes a finding that it erred in providing the opinion.

The department shall send a copy of the rescinded opinion to all persons receiving the original opinion and, if known to the department, their successors in interest.

(e) **Terminating contracts.** The department reserves the right to unilaterally terminate voluntary cleanup program contracts at any time. Contracts for advice and assistance for which no activity has occurred under the contract within twelve months are the most likely to be terminated by the department. The department may not terminate a contract for lack of activity if it is the result of the department's failure to respond. Prior to terminating the contract, the department shall notify the applicant of the pending termination and inquire about the status of the facility. Any unused deposit shall be returned to the applicant upon termination.

(f) **Removing sites from the hazardous sites list.** It is the department's policy, in conducting reviews under this subsection, to promote independent remedial actions by removing sites from the hazardous sites list whenever a site as a whole meets the criteria in WAC 173-340-330(7).

(6) **Payment of costs.** ~~Cost of technical consultations.~~ ~~For information on the payment of remedial action costs, see~~ The costs of providing advice or assistance, including written opinions, under this section may be recovered as provided for under WAC 173-340-550~~(6)~~.<sup>219</sup>

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<sup>219</sup> Reflects current practice.

**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 70.105D.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;

**(ii)** Information which demonstrates that the settlement will yield substantial new resources to facilitate cleanup;

**(iii)** A general description of the proposed continued use or redevelopment or reuse of the site, including the proposed schedule for purchase, redevelopment, or reuse; and

**(iv)** Information describing whether and how the proposed settlement will provide a substantial public benefit.

**(d)** Recognizing that the 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 steps in the process for which the consent decree is requested. For example, a request for a consent decree for a remedial investigation/feasibility study should generally include the level of information needed for a site hazard assessment, if not already done by the department, so that the department and the public can evaluate the proposed scope of work and relative priority of the site.

**(e)** The department may waive part of the letter requirements of (a) of this subsection if the requirements have already been met.

**(f) Response.** The department shall respond to the request within sixty days, unless the department needs additional time to determine potentially liable person status under WAC 173-340-500. This determination will be based in part on a preliminary finding by the department that any resulting consent decree would be in accordance with RCW 70.105D.040 (4)(a). The department may:

**(i)** Request additional information;

**(ii)** Accept the request and require the person to submit a detailed written proposal by a specified date; or

**(iii)** Provide written reasons for denying the request.

**(g) Contents of detailed proposal.** If the request is accepted by the department, the detailed written ~~The~~ proposal shall contain:<sup>220</sup>

(i) A proposed technical scope of work describing the remedial action to be conducted;

(ii) The data, studies, or any other information upon which the settlement proposal is based;

(iii) A statement describing the potentially liable person's ability to conduct or finance the remedial action as described in the proposed scope of work;

(iv) A schedule for proposed negotiations and implementation of the proposed remedial actions; and

(v) Any additional information requested by the department.

(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 or others who are expected to conduct the remainder of the cleanup.<sup>221</sup>

(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 sixty 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~~ ~~The~~ department, may require any person who requests a prospective purchaser agreement ~~and receives a notice accepting the request under (f) of this subsection shall to~~ enter into a prepayment agreement with the department consistent with WAC 173-340-550(7) ~~before negotiations will begin.~~<sup>222</sup>

**(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. The length of the negotiation period specified by the department shall be no less than that proposed by the potentially liable person provided it does not conflict with the deadlines established under WAC 173-340-140.

**(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 70.105D RCW, but the duration of such stay shall not exceed one hundred twenty 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

<sup>220</sup> Editorial change.

<sup>221</sup> "Others" added to reflect that there could be persons exempt from MTCA liability wanting to participate in the cleanup, such as a local government or lender.

<sup>222</sup> Change in emphasis to clarify that Ecology doesn't always require a "prepayment agreement" upfront for prospective purchaser agreements. This is a site-specific decision that depends on factors such as the availability of staff to work on the site and the amount of time expected to take to develop an agreement.

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 thirty-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 ninety 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 70.105D RCW, but the

duration of the stay shall not exceed ninety 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 thirty 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 70.105D.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 sixty 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;

**(b)** Proceed with discussions, if the department believes it is in the public interest to do so; or

**(c)** Provide written reasons for denying the request.

**(4) Procedures for agreed orders initiated by the department.** When the department believes that an agreed order is an appropriate method to achieve remedial action at a facility, it may initiate the request for an agreed order.

**(5) Duration of discussions.** Discussions on the agreed order shall not exceed sixty days unless the department decides continued discussions are in the public interest.

**(6) Enforcement.** Unless an emergency exists, the department will stay any enforcement action under chapter 70.105D RCW; however, the duration of such stay shall not exceed sixty days from the date discussions begin. Furthermore, the department can withdraw from discussions if it determines that:

**(a)** Reasonable progress is not being made toward an agreed order acceptable to the department; or

**(b)** The agreed order 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 discussions.

**(7) Focus of discussions.** The focus of discussions for the agreed order shall ordinarily be the technical scope of work and work schedule.

This subsection is not intended to preclude discussion on any item. It is intended to convey the expectation that the scope of work and work schedule will be the primary topics of discussion in developing agreed orders.

**(8) Public participation.**

(a) When issuing an agreed order, the department shall provide appropriate public participation opportunities under WAC 173-340-600.

(b) If the department and the potentially liable person signing the order agree to substantial changes in the order, the department shall provide appropriate additional public notice and opportunity to comment.

**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 70.105D.050.

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

(1) **Purpose.** A private right of action is a legal claim authorized by RCW 70.105D.080 under which a person may recover costs of remedial action from other persons liable under the act. RCW 70.105D.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 off-site 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.** <sup>223</sup> 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 a public notice would not normally be ~~done~~ **issued** 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

<sup>223</sup> Deleted language no longer needed.

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 ~~mailed—sent via certified mail, return receipt requested or by personal delivery,~~<sup>224</sup> at least fifteen 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 *Site Register*);<sup>225</sup>

(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 70.105D.040 known to the person conducting the interim action or cleanup action. In identifying persons potentially liable under RCW 70.105D.-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 70.105D.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 an environmental covenant under WAC 173-340-440,<sup>226</sup> 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

<sup>224</sup> To establish a legal record that the notice was received.

<sup>225</sup> The notice shall be sent to:  
Department of Ecology, Toxics Cleanup Program  
Attention: Private Right of Action  
P.O. Box 47600, 300 Desmond Drive S.E.  
Lacey, WA 98504-7600

[To be added as a footnote to the rule]

Added to ensure correct Ecology office is sent this notice so it can be published in the site register in a timely manner.

<sup>226</sup> Reflects new terminology in Chapter 64.70 RCW (UECA), passed in 2007 legislative session.

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/feasibility study);

(b) WAC 173-340-355 (Development of cleanup action alternatives that include remediation levels);

(c) WAC 173-340-357 (Quantitative risk assessment of cleanup action alternatives);

(d) WAC 173-340-360 (Selection of cleanup actions);

(e) WAC 173-340-380 (Cleanup action plan);

(f) WAC 173-340-400 (Cleanup actions);

(g) WAC 173-340-410 (Compliance monitoring requirements);

(h) WAC 173-340-430 (Interim actions);

(i) WAC 173-340-440 (Institutional controls);

(j) WAC 173-340-450 (Releases from underground storage tanks);

(k) Part VII of WAC 173-340-~~700 through 173-340-760~~ (Cleanup standards); and

(l) WAC 173-340-810 through 173-340-850 (General provisions).

**(5) Timing of private action.** Under RCW 70.105D.080, a private right of action must be brought within three years from the date remedial action confirms cleanup standards are met or within one year of May 12, 1993, whichever is later. The department has determined that the intent of this provision is to not start the three year time limit on a private right of action until the cleanup standards are met at the designated point(s) of compliance allowed under this chapter. Furthermore, it is the department's opinion that interim actions that only meet the cleanup standards for a portion of the site do not initiate this three year time limit. This provision is not intended to prevent earlier filing of private rights of action. <sup>227</sup>

<sup>227</sup> This provision is intended to provide courts with guidance on application of the 3 year time limit. It is added in response to the Moses Lake vs. the United States, 2006.

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

(1) **Policy.** RCW 70.105D.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 70.105D 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.~~<sup>228</sup> 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.

<sup>228</sup> Deleted because Ecology may request payment from persons not under an order or decree (e.g. VCP sites & prepayment sites).

(a) Costs of direct activities are direct staff costs and other direct costs.

(i) Direct staff costs (DSC) are the costs of hours worked by department staff on activities directly ~~on~~ related to 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, department employees.<sup>229</sup>

(ii) 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, attorney general costs and contracted work for the site (including work conducted through an interagency agreement or memorandum of understanding).<sup>230</sup>

(b) Agency support costs are the costs of facilities, communications, personnel, fiscal, and other state-wide and agency-wide services incurred in support of the direct activities identified in provision (2)(a). 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 January 1, 2008, was the United States Department of the Interior Environmental Protection Agency) for each fiscal year.<sup>231</sup>

(c) Program support costs are the costs of non-site-specific administrative time spent by site managers and other staff who work directly on sites, ~~and a portion of~~ It also includes the cost of management, clerical, policy, computer, financial, ~~citizen technical advisor~~ technical, and other ~~support provided by other program staff to site managers and other staff who work directly on sites~~ program-level services incurred in support of the direct activities identified in provision (2)(a). ~~Other activities of the toxics cleanup program not included in program support costs include, for~~

<sup>229</sup> Editorial changes.

<sup>230</sup> Reflects current practice of directly invoicing attorney general and interagency costs for time worked on a specific site.

<sup>231</sup> Editorial changes. EPA is the current federal cognizant agency.

~~example, community relations not related to a specific site, policy development and a portion of the cost of 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 *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).<sup>232</sup>

**(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 twelve percent interest (annual percentage rate, compounded monthly) shall accrue on all remedial action costs not paid within ~~ninety~~thirty days of the billing date, or within another longer time period designated by the department.<sup>233</sup>

**(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~~assistance 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~~may be required.<sup>234</sup> The

<sup>232</sup> Several editorial changes to clarify what costs are included and reflect current practice. The elimination of the citizen technical advisor reflects proposed changes to Section 600.

<sup>233</sup> The State Auditor has recommended Ecology use a 30 day deadline for payment of bills.

<sup>234</sup> Ecology is not generally requiring a deposit for reviews under its voluntary cleanup program. This change is made to reflect this but preserve this option in the future, should that procedure change.

department's hourly costs shall be determined based on the method in WAC 173-340-550(2).

**(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~~the department's collection of costs for any of the following reasons:<sup>235</sup>

**(i)** ~~Based~~ Based on that person's ability to pay;

**(ii)** To facilitate public participation; or,

**(iii)** The department's time to respond to the request is de minimis.

~~(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

<sup>235</sup> Editorial change to consolidate and clarify (c) and (d).

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 70.105D.070 (2)(d)(xi), the department may provide public funds from the state toxics control 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 state toxics control 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 state toxics control 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.

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

(1) **Purpose.** Public participation is an integral part of the department's responsibilities under the Model Toxics Control Act. The department's goal is to provide the public with timely information and meaningful opportunities for participation that are commensurate with each site. The department will meet this goal through a public participation program that includes: The early planning and development of a site-specific public participation plan; the provision of public notices; a site register; and public meetings or hearings; ~~and the participation of regional citizens' advisory committees.~~<sup>236</sup>

(2) **Other requirements.** In addition to the requirements in this section, other sections of this chapter contain specific notice requirements that must also be followed. See WAC 173-340-7200 for notice requirements on an off-property conditional point of compliance and cleanup levels for ground ~~water~~ ~~water~~ flowing into nearby surface water; WAC 173-340-545 for public notice requirements for private rights of action; WAC 173-340-440 for local government notification requirements for ~~restrictive~~ ~~environmental~~ covenants;<sup>237</sup> and WAC 173-340-310 for public notice requirements for emergency or interim actions required by the department as a result of an initial investigation.

(3) **Criteria.** ~~In order to~~ To promote effective and meaningful public participation, the department may determine that public participation opportunities in addition to those specifically required by chapter 70.105D RCW, or this chapter, are appropriate and should be provided. In making this determination, the department may consider:

(a) Known or potential risks to human health and the environment that could be avoided or reduced by providing information to the public;

(b) Public concerns about the facility;

(c) The need to contact the public in order to gather information about the facility;

(d) The extent to which the public's opportunity to affect subsequent departmental decisions at the facility may be limited or foreclosed in the future;

(e) The need to prevent disclosure of confidential, unverified, or enforcement-sensitive information;

(f) The routine nature of the contemplated remedial action; and

(g) Any other factors as determined by the department.

(4) **Public notice.** Whenever public notice is required by chapter 70.105D RCW, the department shall, at a minimum, provide or require notice as described in this section ~~except as specified for the biennial report in WAC 173-340-340.~~<sup>238</sup>

(a) **Request for notice.** Notice shall be mailed to persons who have made a timely request. A request for notice is timely if received before or during the public comment period for the current phase of remedial action at the facility. However, the receipt of a request for notice shall not require the department to extend the comment period associated with the notice.

(b) **Mail.** Notice shall be mailed to persons who reside within the potentially affected vicinity of the proposed action. The potentially affected vicinity shall include all property within and contiguous to the site and any other area that the department determines to be directly affected by the proposed action.

(c) **Newspaper publication.** Notice of the proposed action shall be published in the newspaper of largest circulation in the city or county of the proposed action, by one or more of the following methods: Display ad; legal notice; or any other appropriate format, as determined by the department.

(d) **Other news media.** Notice of the proposed action shall be mailed to any other news media that the department determines to be appropriate. The department may consider how a medium compares with the newspaper of largest

<sup>236</sup> Reflects elimination of these committees in the 2001 legislative session.

<sup>237</sup> New term for restrictive covenants from Chapter 64.70 RCW (UECA), passed in 2007 legislative session.

<sup>238</sup> Reflects changes to RCW 70.105D.030(4) in 2007 legislative session eliminating biennial report.

circulation in terms of: Audience reached; timeliness; adequacy in conveying the particular information in the notice; cost; or other relevant factors.

**(e) Comment periods.** All public notices shall indicate the public comment period on the proposed action. Unless stated otherwise, comment periods shall be for thirty days at a minimum. The department may extend the public comment period, as appropriate.

**(f) Combining public comment requirements.** Whenever reasonable, the department shall consolidate public notice and opportunities for public comment under this chapter with public notice and comment requirements under other laws and regulations.

**(g) Site-specific risk assessment.** For public notices describing cleanup plans that use site-specific risk assessment or would restrict future site or resource use, the public notice shall specifically identify the restrictions and invite comments on these elements of the cleanup plan. This notice shall also include a statement indicating the availability of public participation grants ~~and of the department's Citizen Technical Advisor for providing technical assistance to citizens on site-specific risk assessment and other issues related to site remediation.~~<sup>239</sup>

**(5) Public meetings.** During any comment period announced by a public notice issued under this chapter, if ten or more persons request a public meeting on the subject of the public notice, the department shall hold a public meeting for the purpose of receiving comments.

**(6) Additional methods.** In addition to "public notice" required by chapter 70.105D RCW, or this chapter, the department may use any of the following methods to provide information to the public:

- (a) Press releases;
- (b) Fact sheets;
- (c) Public meetings;
- (d) Publications;
- (e) Personal contact by department employees;

<sup>239</sup> Citizen Technical Advisory is proposed for elimination due to lack of demand for this by citizens and the department's inability to fund this position.

(f) Posting signs at the facility;

(g) Notice in the *Site Register*;

(h) Notice through the Internet;

(i) Electronic mail (e-mail);<sup>240</sup>

~~(h)~~(i) Any other methods as determined by the department.

**(7) Site Register.** The department shall regularly publish, or make available electronically, and maintain a publication called the *Site Register*, which provides notice of the following:<sup>241</sup>

(a) Determinations of no further action under WAC 173-340-320;

(b) Results of site hazard rankings;

(c) Availability of annual ~~and biennial~~ reports;<sup>242</sup>

(d) Issuance of enforcement orders, agreed orders, or proposed consent decrees;

(e) Public meetings or hearings;

(f) Scoping notice of department-conducted remedial investigation/feasibility study;

(g) Availability of remedial investigation/feasibility study reports and draft and final cleanup plans;

(h) Change in site status or placing sites on or removing sites from the hazardous sites list under WAC 173-340-330;

(i) Availability of engineering design reports under WAC 173-340-400;

(j) Schedules developed under WAC 173-340-140;

(k) Reports of independent cleanup actions received under WAC 173-340-300;

(l) Beginning of negotiations or discussions under WAC 173-340-520 and 173-340-530;

(m) Deadline extensions or missed deadlines under WAC 173-340-140;

(n) A summary of any notices received under WAC 173-340-545 for cleanup actions and interim actions being conducted where a private right of action is anticipated;

<sup>240</sup> Reflects current practice.

<sup>241</sup> Intended to provide Ecology with the option of issuing the site register only electronically in the future. Currently, about ½ of the 1,600 recipients received the site register electronically.

<sup>242</sup> Reflects a change in the statute eliminating biennial reports.

~~(o) A list of available department publications, including guidance, technical reports and policies pertinent to remedial actions;~~<sup>243</sup>

~~(p)~~ The results of department review of reports on independent remedial actions submitted under WAC 173-340-515;

(p) The results of periodic reviews under WAC 174-340-420;<sup>244</sup> and

(q) Any other notice that the department considers appropriate for inclusion.

**(8) Evaluation.** As part of requiring or conducting a remedial action at any facility, the department shall evaluate public participation needs at the facility. The evaluation shall include an identification of the potentially affected vicinity for the remedial action. For sites where site-specific risk assessment is used, the department shall also evaluate public interest in the site, significant public concerns regarding future site use, and public values to be addressed through the public participation plan.<sup>245</sup>

**(9) Public participation plans.**

**(a) Scope.** The public participation plans required by this section are intended to encourage a coordinated and effective public involvement tailored to the public's needs at a particular facility. The scope of a plan shall be commensurate with the nature of the proposed remedial actions; the level of public concern; and the risks posed by the facility.

**(b) Early planning encouraged.** In order to develop an appropriate plan, the department or potentially liable person (if submitting a plan to the department) should engage in an early planning process to assess the public participation needs at the facility. This process may include identifying and conferring with individuals, community groups, local governments, tribes, public agencies, or any other organizations that may have an interest in or knowledge of the facility.

**(c) Plan development.** The department shall develop the plan, or work with the potentially

liable person to develop the plan. If a plan already exists for a facility, the department shall 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.

**(d) Plans required.** ~~As part of requiring or conducting a remedial action, except emergency actions, at any site that has been assigned a hazard ranking score, Except for emergency remedial actions, as part of requiring a remedial action under an enforcement order, agreed order or consent decree, and the department conducting a remedial action,~~ the department shall ensure that a public participation plan is developed and implemented. ~~The department may also require the development of a public participation plan as part of an agreed order (see WAC 173-340-530) or consent decree (see WAC 173-340-520) for facilities that have not been assigned a hazard ranking score.~~<sup>246</sup>

**(e)** If the variables proposed to be modified in a site-specific risk assessment or alternative reasonable maximum exposure scenario may affect the significant public concerns regarding future land or resource uses and exposure scenarios,<sup>247</sup> then the department shall assure appropriate public involvement and comment opportunities will occur as identified in the public participation plan.

**(f) Plan as part of order or decree.** A potentially liable person will ordinarily be required to submit a proposed public participation plan as part of its request for an agreed order or a consent decree. If a plan already exists for the facility, the potentially liable person 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 or negotiations on the agreed order (see WAC 173-340-530) or consent decree (see WAC 173-340-520).

<sup>243</sup> Now published on Ecology's website.

<sup>244</sup> Reflects current practice.

<sup>245</sup> Changed to reflect that not all sites with such concerns needed to be addressed will have a formal public participation plan.

<sup>246</sup> Reflects current practice of preparing public participation plans for all sites under and order or decree, not just ranked sites.

<sup>247</sup> Such as groundwater or beach use restrictions.

The final public participation plan may become part of the agreed order or consent decree.

**(g) Contents.** The public participation plan shall include the following:

**(i)** Applicable public notice requirements and how these will be met, including: When public notice will occur; the length of the comment periods accompanying each notice; 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; ~~or obtaining advice from the appropriate regional citizens' advisory committee.~~<sup>248</sup>

**(iv)** Methods of addressing the public's concerns and conveying information to the public. These may include any of the methods listed in subsection (6) of this section.

**(v)** Coordination of public participation requirements. The plan should identify any public participation requirements of other applicable federal, state or local laws, and address how such requirements can be coordinated. For example, if Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) applies to the proposed action, the plan should explain how CERCLA and this chapter's public comment periods will be coordinated.

**(vi)** Amendments to the plan. The plan should outline the process for amending the plan. Any amendments must be approved by the department.

~~**(vii)** Citizen technical advisor. A statement indicating the availability of the department's citizen technical advisor for providing technical assistance to citizens on issues related to the investigation and cleanup of the site.~~<sup>249</sup>

~~**(viii)**~~**(vii)** Any other elements that the department determines to be appropriate for inclusion in the final public participation plan.

**(h) Implementation.** The department shall retain approval authority over the actions taken by a potentially liable person to implement the plan.

**(10) Consent decrees.** In addition to any other applicable public participation requirements, the following shall be required for consent decrees.

**(a) Public participation plan.** A plan meeting the requirements of subsection (9) of this section shall be developed when required by subsection (9)(d) of this section.

**(b) Notice of negotiations.** When the department decides to proceed with negotiations it shall place a notice in the *Site Register* advising the public that negotiations have begun. This notice shall include the name of the facility, a general description of the subject of the consent decree and the deadlines for negotiations.

**(c) Notice of proposed decree.** The department shall provide or require public notice of proposed consent decree. The notice may be combined with notice of other documents under this chapter, such as a cleanup action plan, or under other laws. The notice shall briefly:

**(i)** Identify and generally describe the facility;

**(ii)** Identify the person(s) who are parties to the consent decree;

**(iii)** Generally describe the remedial action proposed in the proposed consent decree, including institutional controls and permit exemptions authorized under RCW 70.105D.090;

**(iv)** Indicate the date, place, and time of the public hearing on the proposed consent decree. Where a public hearing is not planned, indicate that a public hearing will only be held if at least ten persons request one and the procedures for requesting a public hearing; and

**(v)** Invite the public to comment at the public hearing (if applicable) or in writing. The public comment period shall run for at least thirty days from the date of the issuance of the notice.

**(d) Public hearing.** The department shall hold a public hearing on the proposed consent decree for the purpose of providing the public with an opportunity to comment whenever ten or more

<sup>248</sup> Reflects elimination of these committees in the 2001 legislative session.

<sup>249</sup> Proposed for elimination.

persons request a public hearing or whenever the department determines a public hearing is necessary.

**(e) Revisions.** If the state and the potentially liable person agree to substantial changes to the proposed consent decree, the department shall provide additional public notice and opportunity to comment.

**(f) Extensions.** The department shall publish in the next *Site Register* the extension of deadlines for designated high priority sites.

**(11) Agreed orders.** In addition to any other applicable public participation requirements, the following shall be required for agreed orders under WAC 173-340-530.

**(a) Public participation plan.** A plan meeting the requirements of subsection (9) of this section shall be developed when required by subsection (9)(d) of this section.

**(b) Notice of discussions.** When the department decides to proceed with discussions it shall place a notice in the *Site Register* advising the public that discussions have commenced. This notice shall include the name of the facility, a general description of the subject of the order and the deadlines for discussions.

**(c) Notice of agreed orders.** Public notice shall be provided by the department for any agreed order. For all agreed orders, notice shall be mailed no later than three days after the issuance of the agreed order. For all agreed orders, the comment period shall be at least thirty days. The agreed order may be effective before the comment period is over, unless the department determines it is in the public interest to complete the public comment period before the effective date of the agreed order. The department may determine that it is in the public interest to provide public notice before the effective date of any agreed order or to hold a public meeting or hearing on the agreed order. Notice of agreed orders shall briefly:

- (i)** Identify and generally describe the facility;
- (ii)** Identify the person(s) who are parties to the agreed order;
- (iii)** Generally describe the remedial action proposed in the proposed agreed order, including institutional controls and permit exemptions authorized under RCW 70.105D.090; and

**(iv)** Invite the public to comment on the proposed agreed order.

**(d) Revisions.** If the department and the potentially liable person agree to substantial changes to the proposed agreed order, the department shall provide additional public notice and opportunity to comment.

**(e) Extensions.** The department shall publish in the next *Site Register* the extension of deadlines for designated high priority sites.

**(12) Enforcement orders.** In addition to any other applicable public participation requirements, the department shall provide public notice of all enforcement orders. Except in the case of emergencies, notice shall be mailed no later than three days after the date of the issuance of the order. In emergencies, notice shall be mailed no later than ten days after the issuance of the order.

**(a) Contents of notice.** All notices shall briefly:

- (i)** Identify and generally describe the facility;
- (ii)** Identify the person(s) who are parties to the order;
- (iii)** Generally describe the terms of the proposed order, including institutional controls and permit exemptions authorized under RCW 70.105D.090; and

**(iv)** Invite the public to comment on the proposed order.

**(b)** The department may amend the order on the basis of public comments. The department shall provide additional public notice and opportunity to comment if the order is substantially changed.

**(13) Remedial investigation/feasibility study.** In addition to any other applicable public participation requirements, the following shall be required during a remedial investigation/feasibility study.

**(a) Scoping.** When the department elects to perform a remedial investigation/feasibility study, the department shall provide public notice and an opportunity to comment on the scope of the remedial investigation/feasibility study.

**(b) Extensions.** The department shall publish in the next *Site Register* the extension of deadlines for designated high priority sites.

(c) **Report.** The department shall provide or require public notice of remedial investigation/feasibility study reports prepared under WAC 173-340-350. This public notice may be combined with public notice of the draft cleanup action plan. At a minimum, public notice shall briefly:

(i) Describe the site and remedial investigation/feasibility study results;

(ii) If available, identify the department's proposed cleanup action and provide an explanation for its selection;

(iii) Invite public comment on the report. The public comment period shall extend for at least thirty days from the date of mailing of the notice.

**(14) Selection of cleanup actions.** In addition to any other applicable public participation requirements, the department shall:

(a) Provide a notice of availability of draft or final cleanup action plans and a brief description of the proposed or selected alternative in the *Site Register*;

(b) Provide public notice of the draft cleanup action plan. A notice of a draft cleanup plan may be combined with notice on the remedial investigation/feasibility study. Notice of a draft cleanup action plan may be combined with notice on a draft consent decree or on an order. At a minimum, public notice shall briefly:

(i) Describe the site;

(ii) Identify the department's proposed cleanup action and provide an explanation for its selection;

(iii) Invite public comment on the draft cleanup action plan. The public comment period shall run for at least thirty days from the date of publication of the public notice.

(c) Whenever the cleanup action plan proposes ~~a restrictive covenant~~ an institutional control as part of the draft cleanup plan, ~~provide notice to and seek comments from~~ consult with the city or county department with land use planning authority for real property subject to the ~~restrictive covenant~~ institutional control. The purpose of this ~~notification consultation~~ is to solicit comment dialogue on whether the proposed ~~restrictive~~

~~covenant~~ institutional control is consistent with any current or proposed land use plans.<sup>250</sup>

**(15) Cleanup action implementation.** In addition to any other applicable public participation requirements, the following shall be required during cleanup action implementation.

(a) Public notice and opportunity to comment on any plans prepared under WAC 173-340-400 that represent a substantial change from the cleanup action plan.

(b) When the department conducts a cleanup action, public notice and an opportunity to comment shall be provided on the engineering design report and notice shall be given in the *Site Register*.

**(16) ~~Routine cleanup and~~ Interim actions.**<sup>251</sup> In addition to any other applicable public participation requirements, the following will be required for ~~routine cleanup actions and~~ interim actions.

(a) Public notice shall be provided for any proposed ~~routine cleanup or~~ interim actions. This public notice shall be combined with public notice of an order or settlement whenever practicable.

(b) At a minimum, public notice shall briefly:

(i) Describe the site;

(ii) Identify the proposed action, including institutional controls and the permit exemptions authorized under RCW 70.105D.090;

(iii) Identify the likely or planned schedule for the action;

(iv) Reference any planning documents prepared for the action;

(v) Identify department staff who may be contacted for further information; and

(vi) Invite public comment on the ~~routine cleanup or~~ interim action. The public comment period shall extend for at least thirty days from the date of the mailing of notice.

**(17) Public participation grants.** RCW 70.105D.070(4) requires funds be allocated for public participation grants to persons, including

<sup>250</sup> Reflects new requirement for “consultation”, not just notice, in RCW 64.70.040 and 70.105D.030(1)(f). Has been expanded to include all institutional controls, not just covenants, consistent with the intent of the legislation.

<sup>251</sup> Changes for consistency with proposal to eliminate the restriction that use of Method A be limited to “routine sites”.

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 the department to learn about available funding, grant application procedures and deadlines. See chapter 173-321 WAC for additional information on public participation grants.

~~(18) **Technical assistance.**— There is created within the department a citizen technical advisor office to provide independent technical assistance to citizens concerning the Model Toxics Control Act and remedial actions occurring under the act. This office will be established upon the effective date of this rule revision and continue for three years. Before the end of the three year period, the department will work with citizen and business representatives to evaluate the effectiveness of this office and to determine whether the office should continue. The costs of this office shall be recovered by the department as provided for in WAC 173-340-550.~~<sup>252</sup>

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<sup>252</sup> Citizen Technical Advisory is proposed for elimination due to lack of demand for this by citizens and the department's inability to fund this position.

**WAC 173-340-610 Regional citizens' advisory committees.** <sup>253</sup>

*[Entire Section to be deleted.]*

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<sup>253</sup> Eliminated in 2001 legislative session.

**WAC 173-340-800 Property access.**

**(1) Normal entry procedures.**<sup>254</sup> RCW 70.105D.030 authorizes the department's authorized employees, agents or contractors to enter upon any property to conduct investigations and remedial actions if ~~Whenever~~ there is a reasonable basis to believe that a release or threatened release of a hazardous substance may exist, ~~the department's authorized employees, agents or contractors may, after reasonable notice, enter upon any real property, public or private, to conduct investigations or remedial actions.~~ Under that provisions, the department must give reasonable notice before entering property unless an emergency prevents such notice. When providing this ~~The~~ notice the department shall briefly describe the reason for requesting access. For the purpose of this subsection, unless earlier access is granted, reasonable notice shall mean:

(a) Written notice to the site owner and operator to the extent known to the department, or upon request, their authorized representative,<sup>255</sup> ~~sent through the United States Postal Service mailed~~<sup>256</sup> at least three days before entry;

(b) Notice to the site owner and operator to the extent known to the department, or upon request, their authorized representative, in person or by telephone at least twenty-four hours before entry.

**(2) Notification of property owner.** The department shall ask a resident, occupant, or other persons in custody of the site to identify the name and address of owners of the property. If an owner is identified who has not been previously notified, the department shall make a prompt and reasonable effort to notify such owners of remedial actions planned or conducted.

<sup>254</sup> Changes in this paragraph are editorial only, and not intended to be substantive.

<sup>255</sup> To reflect cases where the property owner requests contact be made through others, such as their consultant or legal counsel.

<sup>256</sup> Reflects current practice. "mailed" is redefined in Section 200 to include e-mail. E-mail is commonly used at sites working with the department (under an order or decree or in the voluntary cleanup program).

**(3) ~~Orders and consent decrees~~ Department access to certain sites.**<sup>257</sup> Whenever investigations or remedial actions are conducted under a decree or order, or pursuant to a request for technical assistance under WAC 173-340-515(5), a potentially liable person shall not deny ~~access to~~ access must be allowed for the department's authorized employees, agents, or contractors to enter and move freely about the property to oversee and verify investigations and remedial actions being performed.

**(4) Ongoing operations.** Persons gaining access under this section shall take all reasonable precautions to avoid disrupting the ongoing operations on a site. Such persons shall comply with all state and federal safety and health requirements that the department determines to be applicable.

**(5) Access to documents.** The department's authorized employees, agents or contractors may, after reasonable notice, enter property for the purpose of inspecting documents relating to a release or threatened release at the facility. Persons maintaining such documents shall:

(a) Provide access during normal business hours and allow the department to copy these documents; or

(b) At the department's request, provide legible copies of the requested documents to the department.

**(6) Emergency entry.** Notice by the department's authorized employees, agents, or contractors is not required for entry onto property to investigate, mitigate, or abate an emergency posed by the release or threatened release of a hazardous substance. The department will make efforts that are reasonable under the circumstances to promptly notify those owners and operators to the extent known to the department of the actions taken.

**(7) Other authorities.** Where consent has not been obtained for entry, the department shall secure access in a manner consistent with state and federal law, including compliance with any war-

<sup>257</sup> To acknowledge increasing role of voluntary cleanup program sites, in addition to work done under orders and decrees.

rant requirements. Nothing in this chapter shall affect site access authority granted under other state laws and regulations.

**(8) Access by potentially liable persons.** The department shall make reasonable efforts to facilitate access to real property and documents for persons who are conducting remedial actions under either an order or decree.

**(9) Information sharing.** The department will provide ~~the access to~~ documents ~~and factual information on releases or threatened releases~~ obtained through this section to persons who request such in accordance with chapter 42.17 RCW and chapter 173-03 WAC. ~~The department does not intend application of these authorities to limit its sharing of such factual information.~~<sup>258</sup>

**(10) Split samples.** Whenever the department intends to perform sampling at a site, it shall indicate in its notification under subsection (1) of this section whether sampling may occur. The person receiving notice may take split samples, provided this does not interfere with the department's sampling.

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

**(1) General provisions.** Requirements under the Occupational Safety and Health Act of 1970 (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) Safety and health plan.** Persons responsible for undertaking remedial actions under this chapter shall prepare a health and safety plan when required by chapter ~~296-62-843~~ WAC. Plans prepared for remedial actions conducted<sup>259</sup> under an order or decree shall be submitted for the department's review and comment. The safety and health plan must be consistent with chapter 49.17 RCW and regulations adopted under that authority.

<sup>258</sup> Changes reflect current practice under the state's public disclosure law.

<sup>259</sup> Reflects change in WAC number. 2<sup>nd</sup> change is editorial.

**WAC 173-340-820 Sampling and analysis plans.**

(1) **Purpose.** A sampling and analysis plan is a document that describes the sample collection, handling, and analysis procedures to be used at a site.

(2) **General requirements.** A sampling and analysis plan shall be prepared for all sampling activities that are part of an investigation or a remedial action unless otherwise directed by the department and except for emergencies. The level of detail required in the sampling and analysis plan may vary with the scope and purpose of the sampling activity. Sampling and analysis plans prepared under an order or decree shall be submitted to the department for review and approval.

(3) **Contents.** The sampling and analysis plan shall specify procedures, that ensure sample collection, handling, and analysis will result in data of sufficient quality to plan and evaluate remedial actions at the site. Additionally, information necessary to ensure proper planning and implementation of sampling activities shall be included. References to standard protocols or procedures manuals may be used provided the information referenced is readily available to the department. The sampling and analysis plan shall contain:

(a) A statement on the purpose and objectives of the data collection, including quality assurance and quality control requirements;

(b) Organization and responsibilities for the sampling and analysis activities;

(c) Requirements for sampling activities including:

(i) Project schedule;

(ii) Identification and justification of location and frequency of sampling;

(iii) Identification and justification of parameters to be sampled and analyzed;

(iv) Procedures for installation of sampling devices;

(v) Procedures for sample collection and handling, including procedures for personnel and equipment decontamination;

(vi) Procedures for the management of waste materials generated by sampling activities, including installation of monitoring devices, in a manner

that is protective of human health and the environment;

(vii) Description and number of quality assurance and quality control samples, including blanks and spikes;

(viii) Protocols for sample labeling and chain of custody; and

(ix) Provisions for splitting samples, where appropriate.

(d) Procedures for analysis of samples and reporting of results, including:

(i) Detection or quantitation limits;

(ii) Analytical techniques and procedures;

(iii) Quality assurance and quality control procedures; and

(iv) Data reporting procedures, and where appropriate, validation procedures.

The department shall make available guidance for preparation of sampling and analysis plans.

**WAC 173-340-830 Analytical procedures.**

(1) **Purpose.** This section specifies acceptable analytical methods and other testing requirements for sites where remedial action is being conducted under this chapter.

**(2) General requirements.**

(a) All hazardous substance analyses shall be conducted by a laboratory accredited under chapter 173-50 WAC, unless otherwise approved by the department.

(b) All analytical procedures used shall be conducted in accordance with a sampling and analysis plan prepared under WAC 173-340-820.

(c) Tests for which methods have not been specified in this section shall be performed using standard methods or procedures such as those specified by the American Society for Testing of Materials, when available, unless otherwise approved by the department.

(d) Samples shall be analyzed consistent with methods appropriate for the site, the media being analyzed, the hazardous substances being analyzed for, and the anticipated use of the data.

(e) The department may require or approve modifications to the standard analytical methods identified in subsection (3) of this section to provide lower quantitation limits, improved accuracy, greater precision, or to address the factors in (d) of this subsection.

(f) Limits of quantitation. Laboratories shall achieve the lowest practical quantitation limits consistent with the selected method and WAC 173-340-707.

(g) Where there is more than one method specified in subsection (3) of this section with a practical quantitation limit less than the cleanup standard, any of the methods may be selected. In these situations, considerations in selecting a particular method may include confidence in the data, analytical costs, and considerations relating to quality assurance or analysis efficiencies.

(h) The department may require an analysis to be conducted by more than one method in order to provide higher data quality. For example, the department 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").

(i) The minimum testing requirements for petroleum contaminated sites are identified in Table 830-1.

**(3) Analytical Methods.<sup>260</sup>**

(a) The following methods shall, as applicable, be used for sample collection, sample preservation, transportation, allowable time before analysis, sample preparation, analysis, method detection limits, practical quantitation limits, quality control, quality assurance and other technical requirements and specifications—~~shall comply with the following requirements, as applicable:~~

(i) ~~Method 1.~~ **Test Methods for Evaluating Solid Waste, Physical/Chemical Methods**, U.S. EPA, SW-846, fourth update to the third edition (2000) (2008);

(ii) ~~Method 2.~~ **Guidelines Establishing Test Procedures for the Analysis of Pollutants**, 40 C.F.R. Chapter 1, Part 136, and Appendices A, B, C, and D, U.S. EPA, July 1, 1999-2003;

(iii) ~~Method 3.~~ **Standard Methods for the Examination of Water and Wastewater**, American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 20th-21<sup>st</sup> edition, 1998-2007;

(iv) ~~Method 4.~~ **Recommended Protocols for Measuring Selected Environmental Variables in Puget Sound**, Puget Sound Estuary Program/Tetra Tech, 1996 edition;

(v) ~~Method 5.~~ **Quality Assurance Interim Guidelines for Water Quality Sampling and Analysis, Ground Water Management Areas Program, Washington Department of Ecology, Water Quality Investigations Section, December 1986; Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, Washington State Department of Ecology, Publication No. 04-03-030, July 2004;**<sup>261</sup>

<sup>260</sup> The edits in this subsection reflect the latest version of these Methods.

<sup>261</sup> New publication since Section was last updated.

(vi) ~~Method 6.~~ Analytical Methods for Petroleum Hydrocarbons, Ecology publication #ECY 97-602, June 1997;

(vii) Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, EPA/625/R-96/010b, USEPA, January 1999;<sup>262</sup>

(viii) Sediment Sampling and Analysis Plan Appendix, Washington State Department of Ecology, Publication No. 03-09-043, February, 2008;

(ix) Petroleum vapor air methods to be determined]; or<sup>263</sup>

(x) Equivalent Other appropriate methods subject to approval by the department in consideration of the factors in subsection (2) of this section.<sup>264</sup>

(b) The methods used for a particular hazardous substance and medium at a site shall be selected in consideration of the factors in subsection (2) of this section.

~~(c) Ground water. Methods 1, 2, 3, and 4, 5, and 6 as described in (a) of this subsection, may be used to determine compliance with WAC 173-340-720.~~<sup>265</sup>

~~(d) Surface water. Methods 1, 2, 3, 4 and 5 6 as described in (a) of this subsection, may be used to determine compliance with WAC 173-340-730.~~

~~(e) Soil. Methods 1 and 6, as described in (a) of this subsection, may be used to determine compliance with WAC 173-340-740 and 173-340-745.~~

~~(f) Air. Appropriate methods for determining compliance with WAC 173-340-750 shall be selected on a case-by-case basis, in consideration of the factors in subsection (2) of this section.~~

<sup>262</sup> Reflects methods currently being used for vapor investigations. Specifically, TO-14A, TO-15 & TO-17 are commonly used.

<sup>263</sup> Total petroleum hydrocarbons and petroleum hydrocarbon fractions methods to be added later.

<sup>264</sup> Change to provide flexibility to use other methods, where the listed methods are insufficient.

<sup>265</sup> (c), (d), (e) & (f) is superfluous language. The Methods establish what types of media they can be applied to.

**WAC 173-340-840 General submittal requirements.** Unless otherwise specified by the department, all reports, plans, specifications, and similar information submitted under this chapter shall meet the following requirements:

(1) **Cover letter.** Include a letter describing the submittal and specifying the desired department action or response.

(2) **Number of copies.** ~~Three—Two paper~~ copies and one electronic copy<sup>266</sup> of the plan or report shall be submitted to the department's office responsible for the facility. The department may require additional copies to meet public participation and interagency coordination needs.

(3) **Certification.** Except as otherwise provided for in RCW 18.43.130, all engineering work submitted under this chapter shall be under the seal of a professional engineer ~~registered with~~ licensed to practice in the state of Washington. Except as otherwise provided for in RCW 18.220, all geologic work shall be submitted under the seal of a professional geologist licensed to practice in the state of Washington.<sup>267</sup>

(4) **Visuals.** Maps, figures, photographs, and tables to clarify information or conclusions shall be legible. All maps, plan sheets, drawings, and cross-sections shall meet the following requirements:

(a) To facilitate filing and handling, be on paper no larger than 24 x 36 inches and no smaller than 8-1/2 x 11 inches. Photo-reduced copies of plan sheets may be submitted provided at least one full-sized copy of the photo-reduced sheets are included in the submittal.

(b) Identify and use appropriate and consistent scales to show all required details in sufficient clarity.

(c) Be numbered, titled, have a legend of all symbols used, and specify drafting or origination dates.

(d) Contain a north arrow.

(e) Use ~~United States Geological Survey datum~~ the standards in subsection (7) of this section<sup>268</sup> as

a basis for all horizontal measurements and elevations.

(f) For planimetric views, show a survey grid based on monuments established in the field ~~and referenced to state plane coordinates.~~<sup>269</sup> This requirement does not apply to conceptual diagrams or sketches when the exact location of items shown is not needed to convey the necessary information.

(g) Where grades are to be changed, show original topography in addition to showing the changed site topography. This requirement does not apply to conceptual diagrams or sketches where before and after topography is not needed to convey the necessary information.

(h) For cross-sections, identify the location and be cross-referenced to the appropriate planimetric view. A reduced diagram of a cross-section location map shall be included on the sheets with the cross-sections.

(5) **Sampling data.** All sampling data shall be submitted consistent with procedures specified by the department. Unless otherwise specified by the department, all such sampling data shall be submitted in both printed form and ~~an~~ by entering into the department's electronic ~~form capable of being transferred into the department's~~ data management system.<sup>270</sup>

(6) **Reporting of monitoring results.** All monitoring data shall be accompanied by a report including:<sup>271</sup>

(a) A summary of all monitoring results, including the horizontal and vertical location of all sampling points;

(b) A comparison of the monitoring results to the appropriate standard (e.g. cleanup level, remediation level, or other appropriate standard) and evaluation of the monitoring results using the

<sup>266</sup> To reduce costs and reflect current technology.

<sup>267</sup> To reflect passage of the geologist licensing law since the rule was last updated.

<sup>268</sup> See subsection (7) footnote.

<sup>269</sup> State plane coordinates deleted as no longer used. See subsection (7) for current standard of practice.

<sup>270</sup> Reflects current practice of data being required to be entered into Ecology's EIM data management system.

<sup>271</sup> Reports are often submitted to Ecology with just the raw data and no analysis or discussion of this data and whether the cleanup standards have been complied with. It can take Ecology staff considerable time to interpret the results. This is intended to address these inadequate submittals.

methods described in the compliance monitoring plan prepared under WAC 173-340-410.

**(7) Survey datum and accuracy.** <sup>272</sup>

(a) All site mapping expressing the location of points with respect to the surface of the earth shall use the North American Datum of 1983 as updated in 1991 [NAD83 (1991)].

(b) All site and sampling elevations shall be expressed in the North American Vertical Datum of 1988 (NAVD88). Sediment elevations and bathymetry in tidally influenced waters may be expressed relative to the mean lower low water elevation.

(c) The accuracy/closure of horizontal measurements and elevations shall be identified.

<sup>273</sup>

(d) If it is cost-prohibitive to establish coordinates and elevations using conventional surveying methods or a survey-grade global positioning system, coordinates and vertical elevations may be estimated using other methods. When using another method, the method and its accuracy shall be described. <sup>274</sup>

**(8) Appendix.** An appendix providing the principal information relied upon in preparation of the submittal. This should include, for example: A complete citation of references; applicable raw data; a description of, or where readily available, reference to testing and sampling procedures used; relevant calculations; and any other information needed to facilitate review.

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<sup>272</sup> The standards cited in (a) and (b) reflect the datum used by the WSDOT and WA DNR and reflect standard surveying practices. These standards are also consistent with the standards currently requested for entering data in Ecology's electronic information management (EIM) system.

<sup>273</sup> See WAC 332-130-090 for land boundary survey standards and the WSDOT highway survey manual for additional information on survey accuracy/closure.  
<http://www.wsdot.wa.gov/Publications/Manuals/M22-97.htm>

*[Footnote to be added to rule]*

<sup>274</sup> For example, using a non-survey grade GPS device to establish a benchmark location and elevation that is then used as a reference point for other measurements.

**WAC 173-340-850 Recordkeeping requirements.**

(1) Any remedial actions at a facility must be documented with adequate records. Such records may include: Factual information or data; relevant decision documents; and any other relevant, site-specific documents or information.

(2) Unless otherwise required by the department, records shall be retained for at least ten years from the date of completion of compliance monitoring or as long as any institutional controls (including land use restrictions) remain in effect, whichever is longer.

(3) Records shall be retained by the person taking remedial action, unless the department requires that person to submit the records to the department.

(4) The department shall maintain its records in accordance with chapter 42.17 RCW.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-850, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-850, filed 4/3/90, effective 5/4/90.]

**WAC 173-340-860 Endangerment.** In the event that the department determines that any activity being performed at a hazardous waste 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.

[Statutory Authority: Chapter 70.105D RCW. 90-08-086, § 173-340-860, filed 4/3/90, effective 5/4/90.]

**WAC 173-340-870 Project coordinator.**

The potentially liable person shall designate a project coordinator for work performed under an order or decree. The project coordinator shall be the designated representative for the purposes of the order or decree. That person shall coordinate with the department and the public and shall facilitate compliance with requirements of the order or decree.

[Statutory Authority: Chapter 70.105D RCW. 90-08-086, § 173-340-870, filed 4/3/90, effective 5/4/90.]

**WAC 173-340-880 Emergency actions.**

Nothing in this chapter shall limit the authority of the department, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

[Statutory Authority: Chapter 70.105D RCW. 90-08-086, § 173-340-880, filed 4/3/90, effective 5/4/90.]

**WAC 173-340-890 Severability.** If any provision of this chapter or its application to any person or circumstance is held invalid, the remainder of this chapter or the application of the provision to other persons or circumstances shall not be affected.

[Statutory Authority: Chapter 70.105D RCW. 90-08-086, § 173-340-890, filed 4/3/90, effective 5/4/90.]