WAC 148-171-510 Contents of prior written notice. WAC 392-172-306 is adopted by reference. Where the adopted rule refers to WAC 392-172-302, refer to WAC 148-171-500.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-510, filed 7/27/01, effective 8/27/01. Statutory Authority: RCW 72.40.022 and 20 U.S.C. §§1401, 1412-1417. 90-16-016, § 148-171-510, filed 7/19/90, effective 8/19/90.]

WAC 148-171-512 Parent consent. WAC 392-172-304 is adopted by reference. Where the adopted rule refers to WAC 392-172-185 (reevaluation), refer to WAC 148-171-120.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-512, filed 7/27/01, effective 8/27/01.]

WAC 148-171-514 Transfer of parental rights at age of majority. WAC 392-172-309 is adopted by reference.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-514, filed 7/27/01, effective 8/27/01.]

WAC 148-171-550 Mediation. In order to ensure that mediation is available to resolve disagreements concerning the identification, evaluation, educational placement of the student or provision of FAPE to the student, and disputes involving any matter where a hearing is requested under this chapter, WAC 392-172-310 through 392-172-317 are adopted and incorporated by reference.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-550, filed 7/27/01, effective 8/27/01.]

WAC 148-171-600 Repealed. See Disposition Table at beginning of this chapter.

WAC 148-171-601 Due process rights and procedures. (1) Hearing rights and procedures shall be consistent with the requirements applicable to public agencies in WAC 392-172-350 through 392-172-364, which are adopted by reference.

(2) A parent, adult student, or the superintendent (or designee) may initiate a hearing in any of the matters and for the purposes stated in WAC 392-172-350(1).

(3) Where the adopted rule refers to WAC 392-172-150 (independent educational evaluation), refer to WAC 148-171-140.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-601, filed 7/27/01, effective 8/27/01.]

WAC 148-171-605 Request for hearing, notice by parent. In addition to the information required in WAC 392-172-350(2), the parent, adult student, or the attorney representing the student must provide notice (which must remain confidential) to the Washington school for the deaf in a request for a hearing to the office of the superintendent of public instruction. The notice must include:

(1) The name of the student;

(2) The address of the residence of the student;

(3) The name of the school the student is attending;

(4) A description of the nature of the problem of the student relating to the proposed initiation or change, including facts relating to the problem; and

(5) A proposed resolution of the problem to the extent known and available to the parents at the time.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-605, filed 7/27/01, effective 8/27/01.]

WAC 148-171-610 Repealed. See Disposition Table at beginning of this chapter.

WAC 148-171-620 Repealed. See Disposition Table at beginning of this chapter.

WAC 148-171-630 Repealed. See Disposition Table at beginning of this chapter.

WAC 148-171-640 Repealed. See Disposition Table at beginning of this chapter.

WAC 148-171-650 Surrogate parents. WAC 392-172-308 is adopted by reference. The definition of "parent" in WAC 392-172-035(5) is adopted by reference in WAC 148-171-010.

[Statutory Authority: RCW 72.40.022. 01-16-101, § 148-171-650, filed 7/27/01, effective 8/27/01. Statutory Authority: RCW 72.40.022 and 20 U.S.C. §§1401, 1412-1417. 90-16-016, § 148-171-650, filed 7/19/90, effective 8/19/90.]

WAC 148-171-700 Repealed. See Disposition Table at beginning of this chapter.

Title 173 WAC

ECOLOGY, DEPARTMENT OF

Chapters

Chapter 173-09 WAC
COORDINATED PERMIT PROCESS

WAC

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

173-09-010 Authority and purpose. [Statutory Authority: RCW 90.60.140. 96-15-104, § 173-09-010, filed 7/22/96, effective 8/22/96. Statutory Authority: RCW 90.60.040. 95-24-040 (Order 95-13), § 173-09-010, filed 11/30/95, effective 12/31/95.] Repealed by 01-05-035 (Order 00-22), filed 2/13/01, effective 3/16/01. Statutory Authority: Chapter 43.21A RCW.

173-09-020 Definitions. [Statutory Authority: RCW 90.60.140. 96-15-104, § 173-09-020, filed 7/22/96, effective 8/22/96. Statutory Authority: RCW 90.60.040. 95-24-040 (Order 95-13), § 173-09-020, filed 11/30/95, effective 12/31/95.] Repealed by 01-05-035 (Order 00-22), filed 2/13/01, effective 3/16/01. Statutory Authority: Chapter 43.21A RCW.

173-09-030 Designation of a coordinating permit agency. [Statutory Authority: RCW 90.60.040. 95-24-040 (Order 95-13), § 173-09-030, filed 11/30/95, effective 12/31/95.] Repealed by 01-05-035 (Order 00-22), filed 2/13/01, effective 3/16/01. Statutory Authority: Chapter 43.21A RCW.

173-09-040 Brief adjudicative proceedings—Expedited appeal of coordinated permit process timelines. [Statutory Authority: RCW 90.60.140. 96-15-104, § 173-09-040, filed 7/22/96, effective 8/22/96.] Repealed by 01-05-035 (Order 00-22), filed 2/13/01, effective 3/16/01. Statutory Authority: Chapter 43.21A RCW.

WAC 173-09-010 through 173-09-040 Repealed. See Disposition Table at beginning of this chapter.

Chapter 173-173 WAC
REQUIREMENTS FOR MEASURING AND REPORTING WATER USE

(Formerly chapter 508-64 WAC)

WAC

WAC 173-173-010 What is the purpose of this rule? (1) This rule establishes standards of acceptability for measuring devices and methods, and requirements for recording and reporting water use data.

(2) All measuring devices or measuring methods required to be installed under this chapter must conform to requirements for measuring devices and methods described in this chapter, or other method(s) approved by the department.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-010, filed 12/21/01, effective 1/21/02.]

WAC 173-173-015 What are the goals of this rule? (1) The department seeks to ensure the reliable, accurate measurement of state water that is diverted, withdrawn, stored and used so that sound decisions may be made in administering state water laws and regulations.

(2) The department has the following specific goals for the enforcement of water measurement and the reporting of measurement data:

(a) Determining whether water is available for appropriation;

(b) Assessing and enforcing water rights compliance;

(c) Understanding the hydrology of surface and ground waters;

(d) Protecting instream resources;

(e) Managing and planning the state's watersheds;

(f) Informing water users about how much and when water is used.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-015, filed 12/21/01, effective 1/21/02.]

WAC 173-173-020 What is the authority for this rule? (1) RCW 90.03.360 directs the department of ecology to require that diversions allowed by all new surface water permits be either metered or measured by other approved methods.

(2) RCW 90.03.360 also directs the department to require metering or measurement by other approved methods as a condition for all previously existing water rights or claims if:

(a) The diversion or withdrawal is from waters in which the salmonid stock status is depressed or critical, as determined by the Washington department of fish and wildlife; or

(b) The flow rate of the surface water diversion exceeds one cubic foot per second.

(3) RCW 90.44.050, 90.44.250 and 90.44.450 give the department authority to require that ground water withdrawals are measured, and to require that information about the amount of water being withdrawn be reported to the department.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-020, filed 12/21/01, effective 1/21/02.]

WAC 173-173-040 To whom does this rule apply? The requirements of this chapter apply to the owner or owners of any source water diversion or source withdrawal and to the department.

(1) Any owner or owners of any surface water diversion are required by state law (RCW 90.03.360) to measure and regulate their water use.

(2) The department must enforce the requirement to measure water use for the following types of water use:

(a) All new surface water permits;

(b) New and existing surface water rights where the diversion of any volume of water is from waters containing depressed or critical salmonid stock;

(c) New and existing ground water rights where the department concludes that the withdrawal of any volume of water may affect surface waters containing depressed or critical salmonid stock;

(d) Existing surface water rights where the diversion volume exceeds one cubic foot per second.

(3) This chapter only applies to source diversions and withdrawals and is not intended to apply to customers of a municipality or public water supply system or members of an irrigation district or similar secondary users.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-040, filed 12/21/01, effective 1/21/02.]

WAC 173-173-045 Definitions. (1) "Approved measuring device" means an instrument or facility constructed and operated in conformance with the requirements of this chapter and that measures the volume or flow rate of water which is diverted, withdrawn, stored, or used.

(2) "Approved measuring method" means a procedure approved by the department, which, when used with an approved measuring device (if applicable), will allow for an accurate computation of flow rate.

(3) "Control" means a feature that determines the stage-discharge relation. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

(4) "Cfs" means cubic feet per second.

(5) "Controlling work" means a device or structure used for diverting, withdrawing, pumping, impounding, storing, measuring, piping, conserving, conveying, confining or using water.

(6) "Department" means the department of ecology.

(7) "Diversion" means to divert water from one course to another. Diversion, when used without qualification, includes the diversion of surface water and the withdrawal of ground water.

(8) "Flow rate" means the volume of water that passes through a specific cross section of a pipe or open channel in a specified period of time.

(9) "Gpm" means gallons per minute.

(10) "Open channel flow" means water moving though a canal, flume, ditch, or other unenclosed conduit, and may include flow in a pipe if the pipe is not full and is not under pressure.

(11) "Pipeflow" means water moving through a closed conduit under pressure.

(12) "Rated section" means a cross-section of a stream, river or ditch where a unique relationship between the stage and flow rate has been determined.

(13) "Rating curve" means the relationship between stage and flow rate in a rated stream section.

(14) "Responsible party" means an owner, owners, manager, or appropriator required by RCW 90.03.360, 90.44.050, 90.44.250 and 90.44.450, or by a permit, rule, or order issued pursuant to these laws, to use a measuring device or method approved by the department.

(15) "Stage" means the elevation of a water surface in relation to a datum or reference point.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-045, filed 12/21/01, effective 1/21/02.]

WAC 173-173-050 What water use information may the department require regarding my water use? (1) The department may require any responsible party to report data describing the volume of water diverted, withdrawn, used or stored, and other related information.

(2) If a responsible party is required to report information regarding water use, the report must be submitted on a form or in a format prescribed by the department and must include such information as requested by the department. The department may require that the information be submitted in writing or electronically. This information may include, but is not limited to, the following:

(a) The name, address and telephone number of the responsible party;

(b) The location of the point(s) of diversion or withdrawal, the place(s) of use and metering site(s);

(c) The county parcel identification number for the point(s) of diversion or withdrawal, and place(s) of use or area served by the diversion or withdrawal, except that municipalities, public water supply systems and irrigation districts shall not be required to provide parcel identification numbers for their customers, members and secondary users.

(d) The water right number(s) or claim number(s) or other information that indicates the legal basis for the diversion or withdrawal;

(e) The volume and/or flow rate of water diverted or withdrawn;

(f) The make, model and serial number of the measuring device(s) and any separable counting units;

(g) The date the device was last calibrated;

(h) Any date(s) during which the meter or measuring device was not functioning properly;

(i) For flow rate data based upon power consumption, electrical records, pump test data, or other data necessary to verify flow rate estimates;

(j) Whether the intake structure for the diversion has a screen or screens installed to prevent the entry of fish into the diversion works or pump facilities;

(k) The water source name;

(l) For public water systems, the public water system identification number and source number assigned by the department of health.

(3) All responsible parties must attest that the information provided is true and correct to the best of their knowledge.

(4) The department may accept water use information from a stream patrolman on behalf of a responsible party.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-050, filed 12/21/01, effective 1/21/02.]

WAC 173-173-060 If I must report data regarding my water use, how shall I report it? (1) The following requirements to measure and report water use, when the department so requires, shall apply to responsible parties who divert or withdraw water.

Recording and Reporting Requirements			
Average diversion rate in gallons per minute	**<10 gpm**	**10-49 gpm**	**>50 gpm**
Recording frequency	Monthly	Biweekly	Weekly
Volume or rate to report	Maximum rate of diversion	Maximum rate of diversion	Maximum rate of diversion
	Annual total volume	Annual total volume	Annual total volume
Date data must be reported to department	By Jan. 31 of the following calendar year	By Jan. 31 of the following calendar year	By Jan. 31 of the following calendar year
Monthly means calendar month			
Weekly means Monday 12:01 a.m. to Sunday 12:00 p.m.			
Biweekly means once every two weeks			
Daily means 12:01 a.m. to 12:00 p.m.			
1 gallon per minute is equivalent to .002 cubic feet per second			

(2) Where a device capable of indicating flow rate is not installed, a responsible party may determine the maximum flow rate by measuring the volume of water that is diverted over a brief time period when the system is operating under maximum demand.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-060, filed 12/21/01, effective 1/21/02.]

WAC 173-173-080 Can the department modify the reporting requirements on a case-by-case basis? (1) Yes. The department may modify the reporting requirements in WAC 173-173-060 of this chapter if it concludes that different reporting requirements are necessary to meet the water measurement and reporting goals described in WAC 173-173-015.

(2) The department will provide a written justification and notification to the responsible party.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-080, filed 12/21/01, effective 1/21/02.]

WAC 173-173-090 What are the general requirements for measuring devices? (1) No withdrawal or diversion of water shall be made unless the measuring devices and facilities are in proper operating condition, except when:

(a) A measuring device or facility is being repaired according to the requirements of subsection (2) or (3) of this section; and

(b) The responsible party uses a substitute measuring device or other method to measure the diversion or withdrawal or to provide a reasonable estimate thereof.

(2) Upon discovery of a malfunctioning measuring device or facility, the responsible party shall repair the device or facility and make them operable as soon as possible.

(3) If a responsible party does not comply with WAC 173-173-090(2), the department may order that a measuring device or facility be repaired or replaced within a specified time period.

(4) Measuring devices and facilities must register and be calibrated for the full range of discharge from the diversion or withdrawal for which they are to be used.

(5) On an open channel diversion, all flow diverted shall be measured as close to the point of diversion as possible.

(6) There shall be no turnouts or diversions between the source of water and the measuring devices and facilities, except for faucets or other small outlets that have a *de minimis* effect on the diversion or withdrawal.

(7) In those cases where wells are authorized for the purpose of supplementing surface waters with water from combined sources, both sources of water shall be metered.

(8) In the case of intermittent artesian wells, the meter shall be installed in a manner that will measure both pumped and flowing discharge.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-090, filed 12/21/01, effective 1/21/02.]

WAC 173-173-100 What are the specific requirements for meters for pressure systems? (1) At any flow rate measured by the meter, the meter itself shall be rated by the manufacturer to register not less than ninety-five percent, nor more than one hundred five percent, of the water actually passing through the meter.

(2) At any flow rate measured by the measuring system; i.e., meter plus any secondary equipment such as data recorders; the system shall register not less than ninety percent, nor more than one hundred ten percent, of the water actually passing through the system.

(3) The meter shall have a visual totalizer or the facility shall be capable of totalizing the flow. The totalizer shall contain sufficient recording digits to ensure that "roll over" to zero does not occur before the next recording period.

(4) The department may require that the measuring device be capable of indicating flow rate as well as totalized flow.

(5) For other conditions necessary to ensure accurate and precise measurement data, the selection, installation and maintenance of measuring devices by water users shall be guided by generally accepted industry standards, such as the American Water Works Association standards and information from the manufacturer. These standards also shall be used by the department in making decisions as to the appropriate selection, installation, operation and maintenance of measuring devices acceptable under this rule.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-100, filed 12/21/01, effective 1/21/02.]

WAC 173-173-110 What are the installation requirements for meters on pressure systems? Meters required under this rule shall meet the following installation requirements:

(1) The meter shall be installed in accordance with manufacturer specifications.

(2) There shall be a full pipe of water at all times when water is being withdrawn.

(3) The meter shall not be installed in a manner that creates an uneven velocity profile. Straight sections of pipe before and after the meter, straightening vanes or other flow conditioning devices shall be used to provide even flow through the meter as necessary.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-110, filed 12/21/01, effective 1/21/02.]

WAC 173-173-120 What are the operation and maintenance requirements for meters on pressure systems? (1) Meters shall be inspected and maintained as specified by the manufacturer.

(2) Meters shall be field or shop calibrated, as specified by the manufacturer. Meters also shall be field or shop calibrated and/or repaired if they are over or under registering. System diagnostics may substitute for physical calibration of nonmechanical meters.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-120, filed 12/21/01, effective 1/21/02.]

WAC 173-173-130 What are the specific requirements for measuring systems on open channels? The following requirements apply to weirs, flumes, ramps and orifices. For other devices, the department will determine specific requirements on a case-by-case basis.

(1) At any flow rate measured by the measuring system, i.e., the measuring device plus any secondary equipment such as data recorders, the system shall register not less than ninety percent, nor more than one hundred ten percent, of the water actually passing through the system.

(2) In determining a stage-discharge relation for these devices, the distribution of open channel flow measurements shall be sufficient to establish a full range of values for the entire stage-discharge relation.

(3) For other conditions necessary to ensure accurate and precise data, generally accepted industry standards, such as those in the U.S. Bureau of Reclamation *"Water Measurement Manual, Third Edition"* and information from the manufacturer or designer, shall guide the selection, installation, and maintenance of measuring devices and facilities by water users. The department also shall use these standards in evaluating the selection, installation, operation and maintenance of the measuring system.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-130, filed 12/21/01, effective 1/21/02.]

WAC 173-173-140 What are the installation requirements for open channel measuring systems? The measuring facility shall be installed or constructed in accordance with the manufacturer's and/or designer's specifications.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-140, filed 12/21/01, effective 1/21/02.]

WAC 173-173-150 What are the operation and maintenance requirements for open channel measuring facilities? (1) Rating curves shall be recalculated when there is a change in channel conditions that significantly alters flow across the control or once a year, whichever is more frequent.

(2) If the measuring system has no continuous stage recorder, an observer shall read the staff gage and record the reading as close in time as is practical before and after changes in regulation of flow occur.

(3) Measuring facilities shall be operated and maintained to ensure that discharge can be measured accurately.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-150, filed 12/21/01, effective 1/21/02.]

WAC 173-173-160 Under what conditions is the use of power consumption data acceptable to the department? (1) Use of power consumption data may be substituted for more direct flow measurement methods, provided:

(a) Use of the method is approved in writing by the department;

(b) Installation of a water meter would be unduly burdensome to the water user;

(c) The water system maintains a constant or near constant pumping or diversion rate;

(d) The power meter is dedicated to one diversion or withdrawal;

(e) A pump test is conducted for a minimum duration of two hours and is conducted under normal operating conditions;

(f) The diversion or withdrawal is not a flowing artesian well.

(2) The equation below shall be used when relying upon electrical power consumption to estimate volume or flow rate. This equation also may be used to estimate flow during short periods of meter repair or maintenance if the department finds that reasonable estimates of pump and motor efficiency are available:

$$V = \frac{318{,}600(kWh)(Peff)(Meff)}{TDH}$$

Where: V = volume of water pumped in gallons;

318,600 = conversion factor;

kWh = number of kilowatt-hours for the time period in question; e.g., irrigation season, year or minutes;

Peff = pump efficiency as a decimal;

Meff = motor efficiency as a decimal; and

TDH = total dynamic head of the system in feet.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-160, filed 12/21/01, effective 1/21/02.]

WAC 173-173-170 What alternative water measuring devices and methods can I use? Any responsible party may use an alternative water measuring device or method that differs from those described in this chapter, if:

(1) The method is approved in writing in advance by the department; and

(2) The device(s) and installation are certified by a registered professional engineer or other qualified person acceptable to the department to:

(a) Measure all flow diverted or withdrawn in accordance with the pipeflow or open channel accuracy requirements in WAC 173-173-100(2) and 173-173-130(1);

(b) Measure the appropriate volumes and flow rates in WAC 173-173-060;

(c) Be installed and operated according to the manufacturer's and/or designer's instructions, and other such conditions as the department may find necessary.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-170, filed 12/21/01, effective 1/21/02.]

WAC 173-173-175 May I request a variance from the technical and reporting requirements contained in this chapter? (1) Yes. Any responsible party may request in writing to the department a variance from the requirements of this chapter pertaining to the:

(a) Acceptable accuracies of measuring devices and methods;

(b) Reporting of water use data;

(c) Calculation of rating curves;

(d) Other provisions as the department may find acceptable.

(2) Provided, the department may not grant a variance from the requirements of WAC 173-173-040 or exempt a responsible party of its obligation to comply with RCW 90.03.360.

(3) No variance request shall be considered granted until the department has approved it in writing.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-175, filed 12/21/01, effective 1/21/02.]

WAC 173-173-180 What recordkeeping responsibilities do I have? All measurement notes, rating curves, calculations, and data logs should be retained as long as practicable, and copies made available to the department when requested.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-180, filed 12/21/01, effective 1/21/02.]

WAC 173-173-190 Will the department notify the Washington department of fish and wildlife about the status of my fish screens? Yes. The department will notify the department of fish and wildlife regarding the status of fish screens associated with diversions and withdrawal facilities subject to this rule.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-190, filed 12/21/01, effective 1/21/02.]

WAC 173-173-200 Does the department have authority to enforce this rule? Yes. In enforcing this chapter the department can impose such sanctions as are appropriate under the authorities vested in it, including, but not limited to, issuing regulatory orders under RCW 43.27A.190 and civil penalties under RCW 90.03.600.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-200, filed 12/21/01, effective 1/21/02.]

WAC 173-173-210 Can I appeal the department's order to measure my water use? Yes. Appeals may be filed with the pollution control hearings board in accordance with RCW 43.21B.230, except that appeals of orders to measure water use issued by a court conducting a general adjudication of water rights pursuant to RCW 90.03.110 through 90.03.245 shall be filed in accordance with the applicable Washington court rules.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-210, filed 12/21/01, effective 1/21/02.]

WAC 173-173-220 Will the department review this rule in the future to determine if changes are necessary? Yes. The department will initiate a review of the rules established in this chapter if new information, changing conditions, or statutory modifications make it prudent or necessary to consider revisions to the chapter.

[Statutory Authority: RCW 90.03.360, 90.44.050, [90.44.]250, [90.44.]450 and chapter 43.21A RCW. 02-02-017 (Order 00-01), § 173-173-220, filed 12/21/01, effective 1/21/02.]

Chapter 173-321 WAC
PUBLIC PARTICIPATION GRANTS

WAC

WAC 173-321-010 Purpose and authority. (1) The department is directed by the Model Toxics Control Act to

provide grants up to sixty thousand dollars to persons who may be adversely affected by a release or threatened release of a hazardous substance and to not-for-profit public interest groups. These grants shall be used to facilitate public participation in the investigation and remediation of a release or threatened release of a hazardous substance and to facilitate public participation in the implementation of the state's solid and hazardous waste management priorities.

(2) The purpose of this chapter is to set forth eligibility criteria and funding requirements for grant projects.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-010, filed 2/12/01, effective 3/15/01. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-010, filed 10/17/89, effective 11/17/89.]

WAC 173-321-020 Definitions. As used in this chapter:

(1) "Department" means the department of ecology.

(2) "Director" means the director of the department of ecology or such person authorized to act for the director.

(3) "Emergency" means an occurrence warranting public participation which occurs after the deadline for grant applications and before the opening of a new grant application period, such as:

(a) An unforeseen release of a hazardous substance at an existing site or a newly discovered site;

(b) An unanticipated decision by the department concerning remedial action at a site or publication of a remedial investigation, feasibility study or risk assessment; or

(c) Discovery of a technical assistance need which could not have been foreseen before the grant application deadline.

(4) "Emergency grant" means a public participation grant in the hazardous substance release category for an emergency as defined in this section.

(5) "Expendable personal property" means all tangible personal property other than nonexpendable personal property.

(6) "Facility" means:

(a) Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, waste pile, pond, lagoon, impoundment, ditch, landfill, tank, storage container, motor vehicle, rolling stock, vessel, or aircraft; or

(b) Any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.

(7) "Grant applicant" means any person requesting a public participation grant.

(8) "Hazardous substance" means:

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

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

(c) Any substance that, on March 1, 1989, is a hazardous substance under 101 (14) of the Federal Cleanup Law, 42 U.S.C. Sec. 960(14);

(d) Petroleum or petroleum products; and

(e) Any substance or category of substances including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment. Except that:

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 laws.

(9) "Hazardous waste management priorities" as defined in RCW 70.105.150 are the priorities in the management of hazardous waste which should be followed in descending order as applicable:

(a) Waste reduction;

(b) Waste recycling;

(c) Physical, chemical, and biological treatment;

(d) Incineration;

(e) Solidification/stabilization treatment;

(f) Landfill.

(10) "Nonexpendable personal property" means tangible personal property having a useful life of more than one year and an acquisition cost of three hundred dollars or more per unit.

(11) "Not-for-profit public interest organization" means any corporation, trust, association, cooperative, or other organization which:

(a) Is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest;

(b) Is not organized primarily for profit; and

(c) Uses its net proceeds to maintain, improve, and/or expand its operations.

(12) "Owner/operator" means any person defined as an owner or operator under RCW 70.105D.020(12).

(13) "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.

(14) "Personal property" means property of any kind except real property. It may be tangible (having physical existence) or intangible (having no physical existence), such as patents, inventions, and copyrights.

(15) "Potentially liable person" means any person whom the department finds, based on credible evidence, to be liable under RCW 70.105D.040. The department shall give notice to any such person and allow an opportunity for comment before making the finding, unless an emergency requires otherwise.

(16) "Real property" means land, land improvements, structures, and appurtenances thereto, excluding moveable machinery and equipment.

(17) "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.

(18) "Remedy, remediation, or remedial action" means any action or expenditure consistent with the purposes of this chapter to identify, eliminate, or minimize any threat or potential 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.

(19) "Solid waste management priorities" as defined in chapter 70.95 RCW are the priorities in the management of solid waste which should be followed in order of descending priority as applicable:

(a) Waste reduction;

(b) Recycling with source separation of recyclable materials as the preferred method;

(c) Energy recovery, incineration, or landfill of separated waste;

(d) Energy recovery, incineration, or landfill of mixed waste.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-020, filed 2/12/01, effective 3/15/01. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-020, filed 10/17/89, effective 11/17/89.]

WAC 173-321-040 Applicant eligibility. (1) Public participation grants may only be awarded to groups of three or more unrelated persons or to not-for-profit public interest organizations.

(2) All applicants must demonstrate their ability to appropriately administer grant funds.

(3) Applications for a hazardous substance release grant, including emergency grants, must include information on:

(a) The nature of the release or threatened release of the hazardous substance;

(b) The location of the release or threatened release of the hazardous substance;

(c) How the applicant group may be adversely affected by the release or threatened release of the hazardous substance;

(d) How the applicant group will promote public participation in the investigation or remediation of the release or threatened release of the hazardous substance;

(e) A complete project description;

(f) How the applicant group represents the environmental, health, and economic interests of individuals affected by the release or threatened release of the hazardous substance;

(g) The applicant group's history and experience, if any, in conducting activities similar to those described in the grant application;

(h) For emergency grants, a description of why an emergency exists, as defined in WAC 173-321-020(3); and

(i) Any other information specified by the department as needed to award a grant.

(4) Applications for a waste management priorities grant must include information on:

(a) How the applicant group will promote or implement the state solid or hazardous waste management priorities;

(b) How the applicant group will promote public participation in the grant project described in the application;

(c) A complete project description;

(d) The applicant group's history and experience, if any, in conducting activities similar to those described in the grant application;

(e) Any other information specified by the department as needed to award a grant.

(5) The following persons or groups of persons shall be ineligible for grant funding:

(a) Any person potentially liable, as defined under RCW 70.105D.040;

(b) Local governments including any political subdivision, regional governmental unit, district, municipal or public corporation, including cities, towns, and counties. The term encompasses but does not refer specifically to the departments within a city, town, or county;

(c) Federal and state governments, or agencies thereof;

(d) Federally recognized Indian tribes, as a governing body. Individual tribe members of three or more persons are eligible to apply for a public participation grant;

(e) Organizations sustained by public funding;

(f) Public and private universities; and

(g) Any organization located outside of Washington state boundaries.

(6) Grant applications failing to qualify may be resubmitted.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-040, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080 and chapter 70.105D RCW. 90-18-065 (Order 90-20), § 173-321-040, filed 9/4/90, effective 10/5/90. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-040, filed 10/17/89, effective 11/17/89.]

WAC 173-321-050 Application evaluation criteria. (1) Except for emergency grants which will be reviewed and evaluated by the department within twenty working days of receipt of the application, all other grant applications received will be reviewed and evaluated by the department within thirty working days after the close of the regular grant application period. Incomplete applications will not be evaluated. Applications will be ranked according to how each application meets the criteria set forth below. Grants will be awarded, within the limits of available funds, to the highest ranking applications. The department may fund all or portions of eligible grant applications.

(2) Priority consideration for public participation grant funding will be given to:

(a) Applicants requesting a hazardous substance release grant;

(b) New applicants; and

(c) Applicants that demonstrate the ability to provide accurate technical information on complex waste management issues.

(3) General criteria. All public participation grants will be evaluated against the following criteria:

(a) The type and extent of the applicant group's past history and experience conducting activities similar to those described in the grant application;

(b) The group's basic funding, with consideration given to groups with limited resources;

(c) The group's ability to appropriately manage grant funds;

(d) Except for emergency grants, if more than one group is interested in the same project, priority consideration will be given to groups who consolidate;

(e) Availability of funding sources for the project;

(f) Past performance under a public participation grant;

(g) The group's ability to define the environmental issue and identify what changes will occur in the problem as a result of the project; and

(h) Demonstration of the use of Bennett's hierarchy or similar methodology with a focus on outcome and clear commitment to follow through to end results.

(4) Special criteria.

(a) Hazardous substance release grants. Hazardous substance release grants, including emergency grants, will be evaluated against the following criteria:

(i) The degree to which the applicant group may be adversely or potentially adversely impacted by the release or threatened release of the hazardous substance, including but not limited to adverse or potential adverse impacts to surface and drinking waters, soils, flora or fauna, species diversity, air quality, property values, marketability of agricultural crops, and recreational areas;

(ii) The degree to which the applicant group represents the environmental, health, and economic interests of individual group members;

(iii) The degree to which the proposed project will promote public participation in the investigation or remediation of the release or threatened release of the hazardous substance.

(b) Waste management priorities grants. Waste management priorities grants will be evaluated against the following criteria:

(i) The degree to which the proposed public participation activity will promote or implement the state solid or hazardous waste management priorities;

(ii) The degree to which the proposed project will facilitate public understanding of the state solid and hazardous waste management priorities;

(iii) The degree to which the proposed public participation activities are consistent with or improve upon existing solid or hazardous waste management plans.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-050, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080 and chapter 70.105D RCW. 90-18-065 (Order 90-20), § 173-321-050, filed 9/4/90, effective 10/5/90. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-050, filed 10/17/89, effective 11/17/89.]

WAC 173-321-060 Eligible project costs. (1) Eligible project costs for substance release grants shall include but not be limited to:

(a) Hiring technical assistants to review and interpret documents;

(b) Public involvement and public education activities;

(c) Reviewing specific plans for environmental testing and analysis, reviewing reports summarizing the results of such plans and making recommendations for modifications to such plans.

(d) Expendable personal property;

(e) Other public participation activities as determined by the department on a case-by-case basis.

(2) Eligible project costs for waste management priority grants shall include but not be limited to:

(a) Assisting in developing and implementing programs that promote or improve state or local solid or hazardous waste management plans;

(b) Assisting in developing programs or activities that promote and are consistent with the state solid or hazardous waste management priorities;

(c) Expendable personal property;

(d) Other public participation activities as determined by the department on a case-by-case basis.

(3) Ineligible projects and grant costs shall include but not be limited to:

(a) Independently collecting or analyzing samples at facility sites;

(b) Hiring attorneys for legal actions against potentially liable persons, facility owners, or the department. Applicants who receive a grant award shall notify the department if legal action is intended or taken on the subject of the grant project or application;

(c) Legislative lobbying activities;

(d) Real property;

(e) Nonexpendable personal property.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-060, filed 2/12/01, effective 3/15/01. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-060, filed 10/17/89, effective 11/17/89.]

WAC 173-321-070 Grant funding. (1) The department may fund up to one hundred percent of eligible project costs.

(2) The maximum grant allowance shall be sixty thousand dollars.

(3) Public participation grants may be renewed annually. A new grant application must be submitted to be evaluated and ranked for additional funding.

(4) The department reserves the right to refuse funding to any and all applications failing to meet the grant eligibility criteria and may reopen the application period for additional applications.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-070, filed 2/12/01, effective 3/15/01. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-070, filed 10/17/89, effective 11/17/89.]

WAC 173-321-080 Grant administration. (1) The department shall establish grant application funding cycles each year.

(2) Public notice of application funding cycles shall be published statewide.

(3) A grant application package will be sent to all persons interested in applying for public participation grants. Grant application packages will include notice of grant application deadlines, grant guidelines, and application forms.

(4) Grant applications will be evaluated by the department. To be funded, applications must include all required elements as outlined in the guidelines.

(5) The obligation of the department to make grant payments is contingent upon the availability of funds through legislative appropriation, and such other conditions not reasonably foreseeable which may preclude awarding such grants.

(6) The department, on at least a biennial basis, will determine the amount of funding available for public participation grants and establish an application and funding cycle. The minimum amount of money available for public participation grants established by the Model Toxics Control Act

shall be one percent of the moneys deposited into the state and the local toxics control accounts.

(7) The department shall not be held responsible for payment of salaries, consultant fees, or other costs related to a contract of the grantee.

(8) To the extent that the Constitution and laws of the state of Washington permit, the grantee shall indemnify and hold the department harmless, from and against, any liability for any or all injuries to persons or property arising from the negligent act or omission of the grantee arising out of a grant contract.

(9) All grants under this chapter shall be consistent with *"Administrative Requirements for Ecology Grants and Loans"* WDOE publication No. 91-18, revised October 2000.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-321-080, filed 2/12/01, effective 3/15/01. Statutory Authority: 1989 c 2. 89-21-072 (Order 89-26), § 173-321-080, filed 10/17/89, effective 11/17/89.]

Chapter 173-322 WAC
REMEDIAL ACTION GRANTS AND LOANS

WAC

WAC 173-322-020 Definitions. Unless otherwise defined in this chapter, words and phrases used in this chapter shall be defined according to WAC 173-340-200.

"Act" means the "Model Toxics Control Act," chapter 70.105D RCW.

"Agreed order" means an order issued under WAC 173-340-530.

"Area-wide ground water contamination" means multiple adjacent properties with different ownership affected by hazardous substances from multiple sources that have resulted in commingled plumes of contaminated ground water that are not practicable to address separately.

"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 cleanup standards, utilizes permanent solutions to the maximum extent practicable, and includes adequate monitoring to ensure the effectiveness of the cleanup action.

"Consent order" means an order issued under chapter 90.48 or 70.105B RCW.

"Coordinated water system plan" means a plan for public water systems within a critical water supply service area which identifies the present and future water system concerns and sets forth a means for meeting those concerns in the most efficient manner possible pursuant to chapter 246-293 WAC.

"Decree" means a consent decree under WAC 173-340-520. "Consent decree" is synonymous with decree.

"Department" means the department of ecology.

"Disposal" means a remedial action which removes hazardous substances from the site and places the hazardous substances in an engineered, regulatory-complaint facility as a final destination.

"Enforcement order" means an order issued under WAC 173-340-540.

"Grant agreement" means a binding agreement between the local government and the department that authorizes the transfer of funds to the local government to reimburse it for a portion of expenditures in support of a specified scope of services.

"Hazard ranking" means the ranking for hazardous waste sites used by the department pursuant to chapter 70.105D RCW.

"Hazardous substances" means any substances as defined in WAC 173-340-200.

"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.

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

"Interim action" means a remedial action conducted under WAC 173-340-430 that partially addresses the cleanup of a site.

"Local government" means any political subdivision, regional governmental unit, district, municipal or public corporation, including cities, towns, and counties. The term encompasses but does not refer specifically to the departments within a city, town, or county.

"Minimum functional standards" means the requirements of chapters 173-304 and 173-351 WAC, the minimum functional standards for solid waste handling.

"National Priorities List (NPL)" means a list of hazardous waste sites at which the United States Environmental Protection Agency intends to proceed with enforcement or cleanup action.

"No further action (NFA) determination" means an opinion issued by the department under WAC 173-340-515 (5)(b).

"Oversight costs" are remedial action costs of the department or the United States Environmental Protection Agency reasonably attributable to the administration of an order or decree for remedial action at a hazardous waste site.

"Pilot study" means an experiment in remedial action method, with the purpose of testing the suitability of a particular cleanup technology or process for remedial action at a particular site.

"Potentially liable person (PLP)" means any person whom the department finds, based on credible evidence, to be liable under RCW 70.105D.040.

"Public water system" means any system, excluding a system serving only one single-family residence and a system with four or fewer connections all of which serve residences on the same farm, providing piped water for human consumption, including any collection, treatment, storage, or distribution facilities under control of the purveyor and used primarily in connection with the system and collection or pre-

treatment storage facilities not under control of the purveyor but primarily used in connection with such system.

"Purveyor" means an agency or subdivision of the state or a municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or person or any other entity that owns or operates a public water system, or the authorized agent of such entities.

"Recycling" means a remedial action which permanently removes hazardous substances from the site and successfully directs the material into a new product suitable for further industrial or consumer use.

"Remedial action" means any action or expenditure to identify, eliminate, or minimize any threat or potential 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.

"Remedial design (RD)" means an engineering study during which technical plans and specifications are developed to guide subsequent cleanup action at a hazardous waste site.

"Remedial investigation/feasibility study (RI/FS)" means a study intended to collect, develop, and evaluate sufficient information regarding a site to enable the selection of a cleanup action.

"Safe drinking water" means water meeting drinking water quality standards set by chapter 246-290 WAC.

"Safe drinking water action" means an action by a local government purveyor or other purveyor to provide safe drinking water through public water systems to areas contaminated by or threatened by contamination from hazardous waste sites.

"Site hazard assessment" means a remedial action that consists of an investigation performed under WAC 173-340-320.

"Site study and remediation" means remedial investigation, feasibility study, pilot study, remedial design, interim action or cleanup action at hazardous waste sites.

"Treatment" means a remedial action which permanently destroys, detoxifies, or recycles hazardous substances.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-020, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-020, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-020, filed 5/1/90, effective 6/1/90.]

WAC 173-322-030 Relation to other legislation and administrative rules. (1) Nothing in this chapter shall influence, affect, or modify department programs, regulations, or enforcement of applicable laws relating to hazardous waste investigation and cleanup.

(2) Nothing in this chapter shall modify the legal settlements and orders the department has secured with potentially liable persons for remedial action. The execution of remedies pursuant to court order or decree shall in no way be contingent upon the availability of grant funding.

(3) All grants shall be subject to existing accounting and auditing requirements of state laws and regulations applicable to the issuance of grant funds.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-030, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-030, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-030, filed 5/1/90, effective 6/1/90.]

WAC 173-322-040 Applicant eligibility. (1) All applicants must be local governments as defined in this chapter.

(2) Site study and remediation grants. Eligibility for site study and remediation grants is limited to applicants that meet the following standards:

(a) The applicant must be a local government that is a potentially liable person (PLP) at a hazardous waste site; or owns a site but is not a PLP; or applies for a remediation grant for area-wide ground water contamination. The local government may be the sole PLP, or there may be other PLPs at the site.

(b) The local government must meet one of the following standards:

(i) The department must have required the local government to perform some phase of remedial action, or have approved or reviewed a completed remedial action. That requirement, approval or review shall take one of the following forms:

(A) A consent decree under chapter 70.105D or 70.105B RCW requiring remedial action at the site; or

(B) An enforcement order or an agreed order under chapter 70.105D or 70.105B RCW prior to March 1, 1989, requiring remedial action at the site; or

(C) An enforcement order, consent order or consent decree under chapter 90.48 RCW requiring remedial action at the site or an amendment to such an order subsequent to March 1, 1989; or

(D) An underground storage tank (UST) compliance order; or

(E) A no further action (NFA) determination issued after completion of an independent remedial action.

(ii) The local government which is also a potentially responsible party under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) must have entered into a decree requiring remedial action at a hazardous waste site with the United States Environmental Protection Agency, provided that such agreement has been signed or acknowledged by the department in writing as a sufficient basis for remedial action grant funding.

(iii) The local government must have signed an agreement with the department requiring another PLP to perform remedial action at a landfill site and that agreement must take one of the forms specified in (b)(i) of this subsection. The local government must also have entered into an agreement with that PLP to reimburse the PLP for a portion of incurred remedial action costs with the sole purpose of providing relief to ratepayers and/or taxpayers from some remedial action costs.

(3) Safe drinking water action grants. Eligibility for safe drinking water action grants is limited to applicants who meet the following standards:

(a) The applicant must be a local government purveyor as defined in WAC 173-322-020 or be a local government applying on behalf of a purveyor.

(b) The subject water system must be in an area determined by the department of ecology to be a hazardous waste site or threatened by contamination from a hazardous waste site.

(c) The subject water system must exhibit levels of contamination which exceed the primary maximum contaminant levels (MCLs) set by WAC 246-290-310 or EPA standards as determined by the department of health, or exhibit levels of contamination which exceed the standards set by WAC 173-340-700 through 173-340-760 as determined by the department of ecology, or be certified by the state department of health that a contaminant threatens the safety and reliability of a public water system which cannot be remedied solely by operational solutions. Contaminants must include at least one hazardous substance. If the contaminant is a nitrate or a trihalomethane, it must be determined to have originated from a hazardous waste site.

(d) An order or decree must be issued to the identified potentially liable persons requiring that safe drinking water be provided to the contaminated area as part of a remedial action. The department may waive this requirement if it has determined that no viable potentially liable persons exist, or if public health would be threatened from unreasonable delays associated with the search for potentially liable persons, or the order or decree process.

(e) If water line extensions are included in the proposed projects, such extensions must be consistent with the coordinated water system plan and growth management plan for the geographic area containing the affected water supplies.

(f) The applicant must be in substantial compliance, as determined by the department of health, with applicable rules of the Washington state board of health or the department of health, as contained in chapter 246-290 WAC (Public water supplies), chapter 246-292 WAC (Water works operator certification), chapter 246-293 WAC (Water System Coordination Act), and chapter 246-294 WAC (Drinking water operating permits).

(4) Site hazard assessment grants. The purpose of site hazard assessment grants is to involve local health districts and departments in assessing the degree of contamination at suspected hazardous waste sites according to WAC 173-340-320. While enabling local health districts or departments to participate in the scoring and ranking process, the department retains the authority to review and verify the results of a site hazard assessment and to establish the hazard ranking of the site. Eligibility for site hazard assessment grants is limited to applications that meet the following standards:

(a) The applicant must be a local health district or department.

(b) The scope of work for a site hazard assessment must conform to WAC 173-340-320 and prescribed guidelines issued by the department.

(c) The assessment must be for sites agreed to by the department.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-040, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-040, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-040, filed 5/1/90, effective 6/1/90.]

WAC 173-322-050 Project and cost eligibility. (1) Costs for site study and remediation.

(a) Eligible costs include reasonable costs, including sales tax, incurred in performing:

(i) Remedial investigations;

(ii) Feasibility studies;

(iii) Remedial designs;

(iv) Pilot studies;

(v) Interim actions;

(vi) Landfill closures as required by chapters 173-304 and 173-351 WAC if included in the order or decree for remedial action;

(vii) Other remedial action included in the order or decree for remedial action, or included as part of the independent remedial action for which a no further action (NFA) determination is issued;

(viii) Capital costs of long-term monitoring systems; and

(ix) Operating and maintenance costs incurred during the first year of accomplishing the cleanup action after facilities and equipment have been installed or constructed.

(b) Ineligible costs:

(i) Retroactive costs except as limited by WAC 173-322-100;

(ii) Legal fees and penalties;

(iii) Oversight costs;

(iv) Operating and maintenance costs after the first year of accomplishing the remedial action;

(v) Operating and maintenance costs of long-term monitoring; and

(vi) At sites other than landfills, additional ineligible costs will include costs incurred to meet departmental requirements for source control and prevention.

(2) Costs for safe drinking water actions.

(a) Eligible costs include reasonable costs, including sales tax, incurred for:

(i) Water supply source development and replacement, including pumping and storage facilities, source meters, and reasonable appurtenances;

(ii) Transmission lines between major system components, including inter-ties with other water systems;

(iii) Treatment equipment and facilities;

(iv) Distribution lines from major system components to system customers or service connections;

(v) Fire hydrants;

(vi) Service meters;

(vii) Project inspection, engineering, and administration;

(viii) Other costs identified by the state department of health as necessary to provide a system that operates in compliance with federal and state standards, or by the coordinated water system plan as necessary to meet required standards;

(ix) Other costs identified by the department of ecology as necessary to protect a public water system from contamination from a hazardous waste site or to determine the source of such contamination;

(x) Individual service connections, including any fees and charges, provided that property owners substantially participate in financing the cost of such connections;

(xi) Drinking water well abandonment for wells identified by the department as an environmental safety or health hazard according to WAC 173-160-415; and

(xii) Interim financing where necessary as a prerequisite to local government issuance of revenue bonds.

(b) Ineligible costs include:

(i) Legal fees and penalties;

(ii) Ecology oversight costs;

(iii) Operating and maintenance costs;

(iv) Retroactive costs except as limited by WAC 173-322-100;

(v) Natural resource damage assessment; and

(vi) Costs for source control or pollution prevention activities at sites other than landfills.

(3) Costs for site hazard assessments. Eligible costs include costs for activities performed pursuant to WAC 173-340-320 and enabling local health districts or departments to participate in the department's site ranking and priority-setting process.

(4) Costs must be eligible under this section and must be approved by the department in order to be eligible for reimbursement.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-050, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-050, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-050, filed 5/1/90, effective 6/1/90.]

WAC 173-322-060 Application process. (1) Application period. The department shall determine appropriate application periods.

(2) Grant applications must:

(a) Include a commitment by the applicant for local funds to match grant funds according to the requirements of WAC 173-322-090.

(b) For site study and remediation projects include a scope of work which accomplishes the requirements of an order or decree.

(c) For safe drinking water action projects, include a scope of work necessary to provide safe drinking water to the area threatened or contaminated.

(d) For site hazard assessment projects, include a scope of work which conforms to the requirements of WAC 173-340-320(4).

(e) For independent remedial actions, include a description of the remedial action for which a no further action (NFA) determination was issued and include a copy of the NFA determination document.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-060, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-060, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-060, filed 5/1/90, effective 6/1/90.]

WAC 173-322-070 Application evaluation and prioritization. (1) When pending grant applications or anticipated demand for site study and remediation grants exceed the amount of funds available, the department may prioritize applications or limit grant awards based on the following:

(a) Relative hazard ranking as determined by the department in accordance with WAC 173-340-330 or the United States Environmental Protection Agency's National Priorities List ranking. Higher ranking sites will receive a higher funding priority.

(b) Evidence that the grant will expedite cleanup.

(c) Relative readiness of the applicant to proceed promptly to accomplish the scope of work.

(2) When pending grant applications or anticipated demand for safe drinking water action grants exceed the amount of funds available, the department may prioritize applications or limit grant awards based on the following:

(a) Relative risk to human health as jointly determined by the department of ecology, in accordance with WAC 173-340-330, and the department of health, in accordance with WAC 246-290-310. Sites with greater risk will receive higher funding priority.

(b) Relative readiness of the applicant to proceed promptly to accomplish the scope of work.

(c) Ownership of the water system to be extended or improved. Local government-owned systems will receive higher funding priority than other systems.

(d) Number of people served by the water system and per capita cost of remediation.

(3) When pending grant applications or anticipated demand for site hazard assessment grants exceed the amount of funds available, the department may prioritize applications or limit grant awards based on the following:

(a) Potential public health or environmental threat from the sites.

(b) Ownership of the sites. Publicly-owned sites will receive priority over privately-owned sites.

(c) Relative readiness of the applicant to proceed promptly to accomplish the scope of work.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-070, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-070, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-070, filed 5/1/90, effective 6/1/90.]

WAC 173-322-090 State assistance share, local cash match, economic disadvantage, and role of potentially liable persons. (1) Except as otherwise provided in this section, costs eligible for site study and remediation and safe drinking water action grants will be considered for grant funding at up to fifty percent, except in the case of site study and remediation grants with eligible costs of over two hundred thousand dollars, local governments who utilize treatment, recycling and/or disposal as part or all of the cleanup action shall be eligible to receive an additional fifteen percent. Independent remedial action grant funds are available only for projects with eligible costs of less than two hundred thousand. The additional fifteen percent funds do not apply to independent remedial actions.

(2) Costs for site hazard assessments which are eligible under WAC 173-322-050(3) will be considered for grant funding of up to one hundred percent.

(3) Costs for area-wide ground water contamination remediation grants will be considered for grant funding of more than fifty percent. Local governments shall be required to obtain partial reimbursement from PLPs. Reasonable measures shall be taken by local governments to maximize reimbursement. The amount of grant funds and how much to pay back will be determined by the department on a case-by-case basis.

(4) Grant funding for economically disadvantaged local governments.

(a) In addition to grant funding under subsection (1) of this section, economically disadvantaged local governments may apply for up to twenty-five percent supplemental funding. This additional funding will be contingent on satisfactory demonstration of extraordinary financial need.

(b) A local government is considered economically disadvantaged if it is a county, or a local government within a county, which meets both of the following criteria:

(i) Per capita income, as measured by the latest official estimate of the Washington state office of financial management, is in the lower twenty counties in the state; and

(ii) It is economically distressed as defined by chapter 43.165 RCW.

(c) The department will include a list of counties which are economically disadvantaged as defined herein in the guidelines for remedial action grants to be published on a biennial basis.

(5) For applicants eligible for site study and remediation grants, if a decree or order requires a potentially liable person (PLP) other than a local government to conduct remedial action, the financial contribution of that PLP will be deducted from the amount eligible for grant funding to the local government.

(6) For applicants eligible for safe drinking water action grants, funding from either the local government or the PLP may be used to match remedial action grant funds.

(7) As established by the Model Toxics Control Act, chapter 70.105D RCW, and implementing regulations, the potentially liable persons bear financial responsibility for remedial action costs. The remedial action grant program may not be used to circumvent the PLP responsibility.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-090, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-090, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-090, filed 5/1/90, effective 6/1/90.]

WAC 173-322-100 Fiscal controls. (1) The department will establish reasonable costs for all grants, require applicants to manage projects in a cost effective manner, and ensure that all potentially liable persons (PLPs) assume responsibility for remedial action.

(2) The department retains the authority to issue grants which reimburse the recipient for less than the maximum percentage allowable under WAC 173-322-090.

(3) Cap on site funding. Except for independent remedial actions where a no further action (NFA) determination is issued after cleanup has been completed, after the remedial investigation and feasibility study have been completed and a final remedial action plan has been developed by an eligible applicant, the department and the applicant will establish a final cleanup budget and negotiate a grant agreement. The grant amount in this agreement will be the final department remedial action grant fund commitment for cleanup at that hazardous waste site. Grant agreements may be amended, but requests to increase the remedial action grant budget at that site will receive a lower priority than other applications.

(4) Retroactive funding. Grant funding of costs already incurred prior to the date of the grant agreement may be allowed to local governments where the order or decree with the department, if any, postdates March 1, 1989, and under one or more of the following circumstances:

(a) If the grant application period is closed when the order or decree becomes effective;

(b) If the department unreasonably delays the processing of a remedial action grant application;

(c) If there are inadequate funds in the local toxics control account to cover the entire scope of work required by decree or order; and/or

(d) If remedial actions not required by decree or order have proceeded, grants for this work may be made if the department later formally includes such work items in a decree or order, or for independent remedial actions conducted no earlier than five years before the date of application if a no further action (NFA) determination is given for that independent remedial action.

(5) Reimbursement of grant funds. If the department awards remedial action funds to a local government that successfully pursues a private right of action against a PLP who has not settled with the department or successfully pursues a claim for insurance proceeds, then the department shall be reimbursed for a proportional share of the moneys received, after the local government's legal fees in pursuing such actions have been deducted.

(6) Repayment of grant funds. Where the department provides a remediation grant for area-wide ground water contamination to a local government, the grant amount shall be partially repaid to the department where ownership of property affected by the grant is held by private parties. The terms and amount of repayment will be included in the grant agreement between the local government and the department.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-100, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-100, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-100, filed 5/1/90, effective 6/1/90.]

WAC 173-322-110 Grant administration. (1) Local governments will be periodically informed of the availability of remedial action grant funding.

(2) A grant application package will be sent to all parties expressing interest in remedial action grants and to all local governments that have been required by decree or order to perform remedial actions. Grant application packages will include grant guidelines and application forms.

(3) Application must be made within sixty days after the date that a decree or order becomes effective or for independent remedial actions, within sixty days of receipt of a no further action (NFA) determination.

(4) The department will prepare a guidance manual on a biennial basis to assist grant applicants and to facilitate compliance with this regulation.

(5) Appropriation and allocation of funds. Grants will be awarded within the limits of available funds. The obligation of the department to make grant payments is contingent upon the availability of funds through legislative appropriation and allotment, and such other conditions not reasonably foreseeable by the department rendering performance impossible. When the grant crosses over bienniums, the obligation of the department is contingent upon the legislative appropriation of funds for the next biennium.

(6) Remedial action grants shall be used to supplement local government funding and funding from other sources to carry out required remedial action.

(7) The department may fund all or portions of eligible grant applications.

(8) To the extent that the Constitution and laws of the state of Washington permit, the grantee shall indemnify and hold the department harmless, from and against, any liability for any or all injuries to persons or property arising from the negligent act or omission of the grantee arising out of a grant contract.

(9) All grants under this chapter shall be consistent with *"Administrative Requirements for Ecology Grants and Loans"* WDOE publication No. 91-18, revised October 2000.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-110, filed 2/12/01, effective 3/15/01. Statutory Authority: RCW 43.21A.080. 93-24-047, § 173-322-110, filed 11/23/93, effective 12/24/93. Statutory Authority: Chapter 70.105D RCW. 90-10-057 (Order 89-45), § 173-322-110, filed 5/1/90, effective 6/1/90.]

WAC 173-322-120 Loans. The department may award a loan or combination loan and grant to a grant applicant. Loan terms and the repayment provisions of a loan shall be established on a case-by-case basis under an agreement between the local government and the department.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-322-120, filed 2/12/01, effective 3/15/01; 90-10-057 (Order 89-45), § 173-322-120, filed 5/1/90, effective 6/1/90.]

Chapter 173-340 WAC
MODEL TOXICS CONTROL ACT—CLEANUP

WAC

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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-100, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-100, filed 4/3/90, effective 5/4/90.]

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.

(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 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.

(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 pre-

pared to provide opportunities for more extensive public involvement in the cleanup process.

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

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-120, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-120, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-120, filed 4/3/90, effective 5/4/90.]

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. Once adequate information has been obtained, decisions shall be made within the framework provided in this chapter and in site-specific orders or decrees.

(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 preparing 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-130, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-130, filed 4/3/90, effective 5/4/90.]

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). 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).

(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).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-140, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-140, filed 4/3/90, effective 5/4/90.]

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

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

"Agreed order" means an order issued by 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 (nonbenzene ring) arrangement of carbon atoms and that do not contain halogens (such as chlorine). See also "aromatic hydrocarbons."

"All practicable methods of treatment" means all technologies 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), 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.

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

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

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

"Carcinogen" means any substance or agent that produces or tends to produce cancer in humans. For implementation of this chapter, the term carcinogen applies to substances on the United States Environmental Protection Agency lists of A (known human) and B (probable human) carcinogens, and any substance that causes a significant increased incidence of benign or malignant tumors in a single, well conducted animal bioassay, consistent with the weight of evidence approach specified in the United States Environmental Protection Agency's Guidelines for Carcinogen Risk Assessment as set forth in 51 FR 33992 et seq.

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

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

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

"Cleanup" means the implementation of a cleanup action or interim action.

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

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

"Cleanup action plan" means the document prepared 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.

"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.

"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.

"Curie" means the measure of radioactivity defined as that quantity of radioactive material which decays at the rate of 3.70×10^{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 consent decree under WAC 173-340-520. "Consent decree" is synonymous with decree.

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

"Department" means the department of ecology.

"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 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, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington or under the jurisdiction of the state of Washington.

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

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

"Exposure duration" means the period of exposure to a hazardous substance.

"Exposure frequency" means the portion of the exposure duration that an individual is exposed to a hazardous sub-

stance, expressed as a fraction. For example, if a person is exposed 260 days (five days per week for 52 weeks) over a year (365 days), the exposure frequency would be equal to: (5 x 50)/365 = 0.7.

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

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

"Facility" means 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, 42 U.S.C. 9601 et seq.

"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 seedstock 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 district 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 or surface water.

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

"Ground 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" means 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; any hazardous substance as defined in RCW 70.105.010(14) or any hazardous substance as defined by rule under chapter 70.105 RCW; 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); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment.

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

"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.

"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" 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 that may interfere with the integrity of an interim action or a cleanup action or result in exposure to hazardous substances at the site. For examples of institutional controls see WAC 173-340-440(1).

"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 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 delivery or transmittal, including private mail carriers, or personal delivery.

"Maximum contaminant level" or "MCL" means the maximum concentration of a contaminant established by either the Washington state board of health or the United States Environmental Protection Agency under the 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.

"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.

"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.

"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.

"Natural biodegradation" means 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 or surface water as a liquid not dissolved in water. The term includes both light nonaqueous phase liquid (LNAPL) and dense nonaqueous phase liquid (DNAPL).

"No 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).

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

"Permanent solution" or "permanent cleanup action" means a cleanup action in which cleanup standards 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.

"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 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, chrysene, benzo[a]pyrene, dibenzo[a,h]anthracene, indeno[1,2,3-cd]pyrene, and benzo[ghi]perylene.

"Potentially liable person" means any person who 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 factor).

"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.

"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) shall be used to determine if a requirement is relevant and appropriate.

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

"Remedial investigation/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 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.

"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 of time needed to achieve the required cleanup levels at the points of compliance established for the site.

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

"Routine cleanup action" means a remedial action meeting all of the following criteria:

- Cleanup standards for each hazardous substance addressed by the cleanup are obvious and undisputed, and allow for an adequate margin of safety for protection of human health and the environment;
- It involves an obvious and limited choice among cleanup action alternatives and uses an alternative that is reliable, has proven capable of accomplishing cleanup standards, and with which 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).

"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.

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

"Site" means the same as "facility."

"Site hazard assessment" 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.

"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 excess cancer risk associated with exposure to multiple hazardous substances and multiple exposure pathways.

"Total petroleum hydrocarbons" or "TPH" means any fraction of crude oil that is contained in plant condensate, crankcase motor oil, gasoline, aviation fuels, kerosene, diesel motor fuel, benzol, fuel oil, and other products derived from the refining of crude oil. For the purposes of this chapter, TPH 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 aliphatic and nonvolatile aromatic petroleum fractions, as appropriate, or other test methods approved by the department.

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

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

"Upper bound on the estimated excess cancer risk of one in one hundred thousand" means the upper ninety-fifth percent confidence limit on the estimated risk of one additional cancer above the background cancer rate per one hundred thousand individuals.

"Upper bound on the estimated excess cancer risk of one in one million" means the upper ninety-fifth percent confidence limit on the estimated risk of one additional cancer above the background cancer rate per one million individuals.

"Volatile organic compound" means those carbon-based compounds listed in EPA methods 502.2, 524.2, 551, 601, 602, 603, 624, 1624C, 1666, 1671, 8011, 8015B, 8021B, 8031, 8032A, 8033, 8260B, and those with similar vapor pressures or boiling points. See WAC 173-340-830(3) for references describing these methods. For petroleum, volatile means aliphatic and aromatic constituents up to and including EC12, plus naphthalene, 1-methylnaphthalene and 2-methylnaphthalene.

"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 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 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.

"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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-200, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-200, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-200, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-200, filed 4/3/90, effective 5/4/90.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

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) "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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-210, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-210, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-210, filed 4/3/90, effective 5/4/90.]

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.

(iv) Free product such as petroleum product or other organic liquids on the surface of the ground or in the ground 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.

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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-300, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-300, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-300, filed 4/3/90, effective 5/4/90.]

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. 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 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).

(4) 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) Department decision. Based on the information obtained about the site, the department shall within thirty days of completion of the initial investigation make one or more of the following decisions:

(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; or

(iii) 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.

(6) Notification.

(a) Sites requiring an emergency remedial action or interim action. If the department determines that an emergency remedial action or 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 notify the owner, operator, and any potentially liable person known to the department of its decision. This notification shall be a letter ("Early Notice Letter") mailed to the person which includes:

(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.

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

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-310, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-310, filed 4/3/90, effective 5/4/90.]

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.

(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 actually or potentially affected by the release, including vertical depth to ground 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, 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 department 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*.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-320, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-320, filed 4/3/90, effective 5/4/90.]

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). 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.

(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, 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. 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) Reranking. The department may at its discretion rerank 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; or

(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 solid waste landfills only, a closure plan meeting the substantive requirements in chapter 173-351 WAC 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 ground water, it has been demonstrated the site meets ground 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) Relisting of sites. The department may relist 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. Additions to the list, changes in site status, and removal from the list shall be published in the *Site Register*.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-330, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-330, filed 4/3/90, effective 5/4/90.]

WAC 173-340-340 Biennial program report. (1) Timing. Before November 1 of each even-numbered year, the department shall prepare a biennial program report for the legislature containing its plan for conducting remedial actions for the following two fiscal years. This report shall identify the projects and expenditures recommended for appropriation from both the state and local toxics control accounts. In determining which sites the department shall consider for planned action, emphasis shall be given to sites posing the highest risk to human health and the environment, as indicated by a site's hazard ranking. The department may also consider other factors in setting site priorities. After legislative action and any revisions, this report shall become the department's biennial program plan.

(2) Public notice. The department shall provide public notice and a hearing on the proposed plan. For purposes of this subsection only, public notice shall consist of mailings to all persons who have made a timely request and to the appropriate news media, and publication in the state register. Notice shall also be provided in the *Site Register*. The public comment period on the proposed plan shall run for at least thirty days from the date of the publication in the *Site Register*.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-340, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-340, filed 4/3/90, effective 5/4/90.]

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. For a remedial action conducted by the department or under a decree or order, a report shall be prepared at the completion of the remedial investigation/feasibility study. Additionally, the department may require reports to be submitted for discrete elements of the remedial investigation/feasibility study. 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)(c)(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.

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

(6) Scope. The scope of a remedial investigation/feasibility study varies from site to site, depending on the informational and analytical needs 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. Where information required in subsections (7)(c) and (8)(c) of this section is available in other documents for the site, that information may be 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. In addition, for facilities on the federal national priorities list, a remedial investigation/feasibility study shall comply with federal requirements.

(7) Procedures for conducting a remedial investigation.

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

(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 be taken before conducting a remedial investigation:

(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) Content. A remedial investigation shall include the following information as appropriate:

(i) 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.

(ii) Site conditions map. An existing site conditions map that illustrates relevant current site features such as property boundaries, proposed facility boundaries, surface topography, surface and subsurface structures, utility lines, well locations, and other pertinent information.

(iii) Field investigations. Sufficient investigations to characterize the distribution of hazardous substances present at the site, and threat to human health and the environment. Where applicable to the site, these investigations shall address the following:

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

(B) 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) Geology and ground water system characteristics. Investigations of site geology and hydrogeology to adequately characterize the areal and vertical distribution and concentrations of hazardous substances in the ground water and those features which affect the fate and transport of these hazardous substances. This shall include, as appropriate, the description, physical properties and distribution of bedrock and unconsolidated materials; ground water flow rate and gradient for affected and potentially affected ground waters; ground water divides; areas of ground water recharge and discharge; location of public and private production wells; and ground water quality data.

(D) Air. An evaluation of air quality impacts, including sampling, where appropriate, and 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, prevailing wind direction, variations in barometric pressure, and wind velocity.

(E) Land use. Information regarding present and proposed land and resource uses and zoning for the site and potentially affected areas and information characterizing human and ecological populations that are reasonably likely to be exposed or potentially exposed to the release based on such use.

(F) Natural resources and ecological receptors.

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

(II) 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. 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 expected to be a lengthy process, and post-

poning the terrestrial ecological evaluation would cause further harm to the environment.

(III) 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.

(G) 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) Regulatory classifications. Regulatory designations classifying affected air, surface water and ground water, if any.

(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.

(v) Other information. Other information may be required by the department.

(8) Procedures for conducting a feasibility study.

(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. If concentrations of hazardous substances do not exceed the cleanup level at a standard point of compliance, no further action is necessary.

(b) Screening of alternatives. An initial screening of alternatives to reduce the number of alternatives for the final detailed evaluation may be appropriate. The person conducting the feasibility study may initially propose cleanup action alternatives or components to be screened from detailed evaluation. The department shall make the final determination of which alternatives must be evaluated in the feasibility study. The following cleanup action alternatives or components may be eliminated from the feasibility study:

(i) Alternatives that, based on a preliminary analysis, the department determines so clearly do not meet the minimum requirements specified in WAC 173-340-360 that a more detailed analysis is unnecessary. This includes those alternatives for which costs are clearly disproportionate under WAC 173-340-360 (3)(e); and

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

(c) Content. A feasibility study shall include the following information as appropriate.

(i) General requirements.

(A) The feasibility study shall include cleanup action alternatives that protect 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.

(B) A reasonable number and type of alternatives shall be evaluated, taking into account the characteristics and complexity of the facility, including current site conditions and physical constraints.

(C) Each alternative may consist of one or more cleanup action components, including, but not limited to, components that reuse or recycle the hazardous substances, destroy or detoxify the hazardous substances, immobilize or solidify the hazardous substances, provide for on-site or off-site disposal of the hazardous substances in an engineered, lined and monitored facility, on-site isolation or containment of the hazardous substances with attendant engineering controls, and institutional controls and monitoring.

(D) Alternatives may, as appropriate, include remediation levels to define when particular cleanup action components will be used. Alternatives may also include different remediation levels for the same component. For example, alternatives that excavate and treat soils at varying concentrations may be appropriate to evaluate. See WAC 173-340-355 for detailed information on establishing potential remediation levels to be evaluated in the feasibility study.

(E) If necessary, evaluate the residual threats that would accompany each alternative and determine if remedies that are protective of human health will also be protective of ecological receptors. See subsection (7)(c)(iii)(F) of this section.

(F) The feasibility study shall include alternatives with the standard point of compliance for each environmental media containing hazardous substances, unless those alternatives have been eliminated under (b) of this subsection, and may include, as appropriate, alternatives with conditional points of compliance.

(G) Each alternative shall be evaluated on the basis of the requirements and the criteria specified in WAC 173-340-360.

(H) A preferred cleanup action may be identified in the feasibility study, where appropriate.

(I) Other information may be required by the department.

(ii) Permanent alternatives.

(A) Except as provided in (c)(ii)(B) of this subsection, the feasibility study shall include at least one permanent cleanup action alternative, as defined in WAC 173-340-200, to serve as a baseline against which other alternatives shall be evaluated for the purpose of determining whether the cleanup action selected is permanent to the maximum extent practicable. The most practicable permanent cleanup action alternative shall be included.

(B) The feasibility study does not need to include a permanent cleanup action alternative under any of the following circumstances:

(I) Where a model remedy is the selected cleanup action;

(II) Where a permanent cleanup action alternative is not technically possible; or

(III) Where the cost of the most practicable permanent cleanup action alternative is so clearly disproportionate that a more detailed analysis is not necessary, as determined through the screening process in (b)(i) of this subsection.

(9) Additional requirements.

(a) Cleanup levels. Unless otherwise specified under this chapter, cleanup levels shall be established for hazardous substances in each medium and for each pathway where a release has occurred, using WAC 173-340-700 through 173-340-760. These are typically initially established during the scoping of the remedial investigation and may be further refined during the remedial investigation and/or feasibility study.

(b) Compliance with other laws. The department may require that a remedial investigation/feasibility study include additional information or analyses to comply with the State Environmental Policy Act or other applicable laws. This includes information necessary to make a threshold determination (see WAC 197-11-335(1)), or information necessary to integrate the remedial investigation/feasibility study with an environmental impact statement (see WAC 197-11-262).

(c) Treatability studies. The department may require treatability studies as necessary to provide sufficient information to develop and evaluate cleanup action alternatives for a site.

(d) Other information. Other information may be required by the department.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-350, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-350, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-350, filed 4/3/90, effective 5/4/90.]

WAC 173-340-355 Development of cleanup action alternatives that include remediation levels. (1) Purpose. A cleanup action selected for a site will often involve a combination of cleanup action components, such as treatment of some soil contamination and containment of the remainder. Remediation levels are used to identify the concentrations (or other methods of identification) of hazardous substances at which different cleanup action components will be used. (See the definition of remediation level in WAC 173-340-200.) Remediation levels may be used at sites where a combination of cleanup actions components are used to achieve cleanup levels at the point of compliance (see the examples in subsection (3)(a) and (c) of this section). Remediation levels may also be used at sites where the cleanup action involves the containment of soils as provided under WAC 173-340-740 (6)(f) and at sites conducting interim actions (see the examples in subsection (3)(b) and (d) of this section).

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

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

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

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

(a) Example of a site meeting soil cleanup levels at the point of compliance. Assume that the soil cleanup level at a site is 20 ppm. Further assume that the cleanup action alternative determined to comply with the minimum requirements in WAC 173-340-360 and selected for the site consists of soil treatment and removal and a remediation level of 100 ppm to define when those two components are used. Under the cleanup standard, any soil that exceeds the 20 ppm cleanup level at the applicable point of compliance must be remediated in some manner. Under the selected cleanup action, any soil that exceeds the 100 ppm remediation level must be removed and treated. Any soil that does not exceed the 100 ppm remediation level, but exceeds the 20 ppm cleanup level, must be removed and landfilled. The cleanup action may be determined to comply with the cleanup standard because the cleanup level is met at the applicable point of compliance.

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

(c) Example of site meeting ground water cleanup levels at the point of compliance. Assume that the ground 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 and selected for the site consists of: Removing the source of the ground water contamination (e.g., removal of a leaking tank and associated soil contamination above the

water table); extracting free product and any ground water exceeding a concentration of 2,000 ug/l; and utilizing natural attenuation to restore the ground 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. As long as the ground water meets the 500 ug/l cleanup level at the conditional point of compliance (the property boundary), the cleanup action may be determined to comply with cleanup standards.

(d) Example of a site not meeting ground water cleanup levels at the point of compliance. Assume that the ground 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 contamination); extraction and treatment of ground water with concentrations in excess of 100 ug/l; and installation of an air stripping system to treat ground water at a water supply well beyond the property boundary to less than 5 ug/l. Further assume that the ground 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. However, in this example, the remedial action does not constitute a cleanup action because it does not comply with cleanup standards, one of the minimum requirements for cleanup actions in WAC 173-340-360. Consequently, the remedial action is considered an interim action until the cleanup level is attained at the conditional point of compliance (the property boundary).

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

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

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.

(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 does not mean that the other minimum requirements specified in WAC 173-340-360 have been met.

(3) Protection of human health. 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. 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 the remediation level is being established for qualifies for a Method C cleanup level under WAC 173-340-706.

(a) Reasonable maximum exposure. Standard reasonable maximum exposures and corresponding Method B and C equations in WAC 173-340-720 through 173-340-750 may be modified as provided under WAC 173-340-708 (3)(d). For example, land uses other than residential and industrial may be used as the basis for an alternative reasonable maximum exposure scenario for the purpose of assessing the protectiveness of a cleanup action alternative that uses a remediation level, engineered control, and/or institutional control.

(b) Exposure parameters. Exposure parameters for the standard Method B and C equations in WAC 173-340-720 through 173-340-750 may be modified as provided in WAC 173-340-708(10).

(c) Acceptable risk level. The acceptable risk level for remediation levels shall be the same as that used for the cleanup level.

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

(e) Burden of proof, new science, and quality of information. Any modification of the default assumptions in the standard Method B and C equations, including modification of the standard reasonable maximum exposures and exposure

parameters, or any modification of default assumptions or methods specified in WAC 173-340-747 requires compliance with WAC 173-340-702 (14), (15) and (16).

(f) Commercial gas station scenario.

(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).

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

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-357, filed 2/12/01, effective 8/15/01.]

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 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 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 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) Ground water cleanup actions.

(i) Permanent ground water cleanup actions. A permanent cleanup action shall be used to achieve the cleanup levels for ground water in WAC 173-340-720 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 ground 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 hazardous substances that cannot be reliably contained. This includes removal free product consisting of petroleum and other light nonaqueous phase liquid (LNAPL) from the ground 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 containment, including barriers or hydraulic control through ground water pumping, or both, shall be implemented to the maximum extent practicable to avoid lateral and vertical expansion of the ground water volume affected by the hazardous substance.

(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.

(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) of this subsection.

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

(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.

(e) Disproportionate cost analysis.

(i) Test. Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative.

(ii) Procedure.

(A) 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 this subsection and the definition of permanent solution in (c) of this subsection.

(B) The most practicable permanent solution evaluated in the feasibility study shall be the baseline cleanup action alternative against which cleanup action alternatives are compared. If no permanent solution has been evaluated in the feasibility study, the cleanup action alternative evaluated in the feasibility study that provides the greatest degree of permanence shall be the baseline cleanup action alternative.

(C) 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.

(f) 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) 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.

(ii) 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.

(iv) Effectiveness over the long term. Long-term effectiveness includes 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: Reuse or recycling; destruction or detoxification; immobilization or solidification; on-site or off-site disposal in an engineered, lined and monitored facility; on-site isolation or containment with attendant engineering controls; and 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.

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

(a) Purpose. 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 cleanup action must meet each of the minimum requirements specified in subsection (2) of this section.

(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;

(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) A longer period of time may be used for the restoration time frame for a site to achieve cleanup levels at the point of compliance if the cleanup action selected has a greater degree of long-term effectiveness than on-site or off-site disposal, isolation, or containment options.

(d) 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) 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.

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

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-360, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-360, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-360, filed 4/3/90, effective 5/4/90.]

WAC 173-340-370 Expectations for cleanup 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 consoli-

dated 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 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-370, filed 2/12/01, effective 8/15/01.]

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.

(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 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 state and federal laws).

(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 actions 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 order or decree. 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. 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.

(4) **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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-380, filed 2/12/01, effective 8/15/01.]

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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-390, filed 2/12/01, effective 8/15/01.]

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 action is designed, constructed, and operated in a manner that is consistent with:

(a) The cleanup action plan;

(b) Accepted engineering practices; and

(c) The requirements specified in WAC 173-340-360.

(2) Administrative options. A cleanup action may be conducted under any of the procedures described in WAC 173-340-510 and 173-340-515.

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

(4) Plans describing the cleanup action. Design, construction, and operation of the cleanup action shall be consistent with the purposes of this section and shall consider relevant information provided by the remedial investigation/feasibility study. For most cleanups, to ensure this is done it will be necessary to prepare the engineering documents described in this section. The scope and level of detail in these documents may vary from site to site depending on the site-specific conditions and nature and complexity of the proposed cleanup action. In many cases, such as routine cleanups and cleanups at leaking underground storage tanks, it is appropriate to combine the information in these various documents into one report to avoid unnecessary duplication. Where the information is contained in other documents it may be appropriate to incorporate those documents by reference to avoid duplication. Any document prepared in order to implement a cleanup may be used to satisfy these requirements provided they contain the required information. In addition, for facilities on the national priorities list the plans prepared for the cleanup action shall also comply with federal requirements.

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

(i) Goals of the cleanup action including specific cleanup or performance requirements;

(ii) General information on the facility including a summary of information in the remedial investigation/feasibility study updated as necessary to reflect the current conditions;

(iii) Identification of who will own, operate, and maintain the cleanup action during and following construction;

(iv) Facility maps showing existing site conditions and proposed location of the cleanup action;

(v) Characteristics, quantity, and location of materials to be treated or otherwise managed, including ground 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:

(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 valves, bypass systems, safety cutoffs);

(xi) A discussion of methods for management or disposal of any treatment residual and other waste materials containing hazardous substances generated as a result of the cleanup action;

(xii) Facility specific characteristics that may affect design, construction, or operation of the selected cleanup action, including:

(A) Relationship of the proposed cleanup action to existing facility operations;

(B) Probability of flooding, probability of seismic activity, temperature extremes, local planning and development issues; and

(C) Soil characteristics and ground 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 covenants and/or other draft documents establishing these institutional controls; and

(xx) Other information as required by the department.

(b) Construction plans and specifications. Construction plans and specifications shall detail the cleanup actions to be performed. The plans and specifications shall be prepared in conformance with currently accepted engineering practices and techniques and shall include the following information as applicable:

(i) A general description of the work to be performed and a summary of the engineering design criteria from the engineering design report;

(ii) General location map and existing facility conditions map;

(iii) A copy of any permits and approvals;

(iv) Detailed plans, procedures and material specifications necessary for construction of the cleanup action;

(v) Specific quality control tests to be performed to document the construction, including specifications for the testing or reference to specific testing methods, frequency of testing, acceptable results, and other documentation methods;

(vi) Startup procedures and criteria to demonstrate the cleanup action is prepared for routine operation;

(vii) Additional information to address applicable state, federal, and local requirements including the substantive requirements for any exempted permits;

(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 part inventory, addresses of suppliers of spare parts, equipment warranties, and appropriate equipment catalogues;

(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) 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) 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 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 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 financial assurance document and any procedures for periodic adjustment to the value of the financial assurance mechanism;

(ii) For sites using institutional controls as part of the cleanup action, copies of recorded deed restrictions (with proof of recording) and other documents establishing these institutional controls.

(d) Plan modifications. Changes in the design or construction of the cleanup action performed under an order or decree shall be approved by the department.

(7) 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.

(9) Requirements for managing waste generated by site cleanup. Any waste contaminated by a hazardous substance generated during cleanup activities and requiring off-site treatment, storage or disposal, shall be transported to a facility permitted or approved to handle these wastes.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-400, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-400, filed 4/3/90, effective 5/4/90.]

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 performance of these controls. Long-term monitoring shall be required if on-site disposal, isolation, or containment is the selected cleanup action for a site or a portion of a site. Such measures shall be required until residual hazardous substance concentrations no longer exceed site cleanup levels established under 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:

(i) A description of any statistical method to be employed; or

(ii) If sufficient data is not available before writing the plan to propose a reliable statistical method to demonstrate and confirm compliance, a contingency plan proposing one or more reliable statistical methods to demonstrate and confirm compliance, and the conditions under which the methods would be used at the facility; and

(c) Other information as required by the department.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-410, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-410, filed 4/3/90, effective 5/4/90.]

WAC 173-340-420 Periodic review. (1) Purpose. A periodic review consists of a review by the department of post-cleanup site conditions and monitoring data to assure that human health and the environment are being protected.

(2) Applicability. The department shall conduct periodic reviews of a site whenever the department conducts a cleanup action; whenever the department approves a cleanup action under an order, agreed order or consent decree; or, as resources permit, whenever the department issues a no further action opinion; and one of the following conditions exists, at the site:

(a) Where an institutional control and/or financial assurance is required as part of the cleanup action;

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

(c) Where, in the department's judgment, modifications to the default equations or assumptions using site-specific information would significantly increase the concentration of hazardous substances remaining at the site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

(3) General requirements. If a periodic review is required under subsection (2) of this section, a review shall be conducted by the department at least every five years after the initiation of a cleanup action. The department may require potentially liable persons to submit information required by the department to conduct a periodic review.

(4) Review criteria. When evaluating whether human health and the environment are being protected, the factors the department shall consider include:

(a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the site;

(b) New scientific information for individual hazardous substances or mixtures present at the site;

(c) New applicable state and federal laws for hazardous substances present at the site;

(d) Current and projected site and resource uses;

(e) The availability and practicability of more permanent remedies; and

(f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

(5) 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 shall also notify all potentially liable persons known to the department of the results of the periodic review.

(6) Determination of whether amendment of the cleanup action plan required. 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.

(7) Determination of whether future periodic reviews required. In conducting a periodic review under this section, the department shall determine whether additional reviews are necessary, taking into consideration the factors in subsection (4) of this section. Sites with institutional controls shall remain subject to periodic reviews as long as the institutional controls are required under this chapter.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-420, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-420, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-420, filed 4/3/90, effective 5/4/90.]

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).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-430, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-430, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-430, filed 4/3/90, effective 5/4/90.]

WAC 173-340-440 Institutional controls. (1) Purpose. Institutional controls are measures undertaken to limit or prohibit activities that may interfere with the integrity of an interim action or cleanup action or that may result in exposure to hazardous substances at a site. Institutional controls may include:

(a) Physical measures such as fences;

(b) Use restrictions such as limitations on the use of property or resources; or requirements that cleanup action occur if existing structures or pavement are disturbed or removed;

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

(d) Educational programs such as signs, postings, public notices, health advisories, mailings, and similar measures that educate the public and/or employees about site contamination and ways to limit exposure; and

(e) Financial assurances (see subsection (11) of this section).

(2) Relationship to engineered controls. The term institutional controls refers to nonengineered measures while the term engineered controls means containment and/or treatment systems that are designed and constructed to prevent or limit the movement of, or the exposure to, hazardous substances. See the definition of engineered controls in WAC 173-340-200 for examples of engineered controls.

(3) Applicability. This section applies to remedial actions being conducted at sites under any of the administrative options in WAC 173-340-510 and 173-340-515.

(4) Circumstances required. Institutional controls shall be required to assure both the continued protection of human health and the environment and the integrity of an interim action or cleanup action in the following circumstances:

(a) The cleanup level is established using Method A or B and hazardous substances remain at the site at concentrations that exceed the applicable cleanup level;

(b) The cleanup level is established using Method C;

(c) An industrial soil cleanup level is established under WAC 173-340-745;

(d) A ground water cleanup level that exceeds the potable ground water cleanup level is established using a site-specific risk assessment under WAC 173-340-720 (6)(c) and institutional controls are required under WAC 173-340-720 (6)(c)(iii);

(e) A conditional point of compliance is established as the basis for measuring compliance at the site;

(f) Any time an institutional control is required under WAC 173-340-7490 through 173-340-7494; or

(g) Where the department determines such controls are required to assure the continued protection of human health and the environment or the integrity of the interim or cleanup action.

(5) Minimum requirements. 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.

(6) Requirement for 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.

(7) Periodic review. The department shall review compliance with institutional control requirements as part of periodic reviews under WAC 173-340-420.

(8) Format.

(a) For properties owned by a person who has been named as a potentially liable person or who has not been named a potentially liable person by the department but meets the criteria in RCW 70.105D.040 for being named a potentially liable person, appropriate institutional controls shall be described in a restrictive covenant on the property. The covenant shall be executed by the property owner and recorded with the register of deeds for the county in which the site is located. This restrictive covenant shall run with the land, and be binding on the owner's successors and assigns.

(b) For properties owned by a local, state, or federal government entity, a restrictive covenant may not be required if that entity demonstrates to the department that:

(i) It does not routinely file with the county recording officer records relating to the type of interest in real property that it has in the site; and

(ii) It will implement an effective alternative system to meet the requirements of subsection (9) of this section.

The department shall require the government entity to implement the alternative system as part of the cleanup action plan. If a government entity meets these criteria, and if it subsequently transfers its ownership in any portion of the property, then the government entity must file a restrictive covenant upon transfer if any of the conditions in subsection (4) of this section still exist.

(c) For properties containing hazardous substances where the owner does not meet the criteria in RCW 70.105D.040 for being a potentially liable person, the department may approve cleanup actions that include restrictive covenants or other legal and/or administrative mechanisms. The use of legal or administrative mechanisms that do not include restrictive covenants is intended to apply to situations where the release has affected properties near the source of the release not owned by a person potentially liable under the act. A potentially liable person must make a good faith effort to obtain a restrictive covenant before using other legal or administrative mechanisms. Examples of such mechanisms include zoning overlays, placing notices in local zoning or building department records or state lands records, public notices and educational mailings.

(9) Restrictive covenants. Where required, the restrictive covenant shall:

(a) Prohibit activities on the site that may interfere with a cleanup action, operation and maintenance, monitoring, or other measures necessary to assure the integrity of the cleanup action and continued protection of human health and the environment;

(b) Prohibit activities that may result in the release of a hazardous substance that was contained as a part of the cleanup action;

(c) Require notice to the department of the owner's intent to convey any interest in the site. No conveyance of title, easement, lease, or other interest in the property shall be consummated by the property owner without adequate and complete provision for the continued operation, maintenance and monitoring of the cleanup action, and for continued compliance with this subsection;

(d) Require the land owner to restrict leases to uses and activities consistent with the restrictive covenant and notify all lessees of the restrictions on the use of the property. This requirement applies only to restrictive covenants imposed after February 1, 1996;

(e) Require the owner to include in any instrument conveying any interest in any portion of the property, notice of the restrictive covenant under this section;

(f) Require notice and approval by the department of any proposal to use the site in a manner that is inconsistent with the restrictive covenant. If the department, after public notice and comment approves the proposed change, the restrictive covenant shall be amended to reflect the change; and

(g) Grant the department and its designated representatives the right to enter the property at reasonable times for the purpose of evaluating compliance with the cleanup action plan and other required plans, including the right to take samples, inspect any remedial actions taken at the site, and to inspect records.

(10) Local government notification. Before a restrictive covenant being established under this chapter, the department shall notify and seek comment from a city or county department with land use planning authority for real property subject to the restrictive covenant. Once a restrictive covenant has been executed, this same department shall be notified and sent a copy of the restrictive covenant. For independent cleanups reviewed by the department under WAC 173-340-515 that use restrictive covenants, the person conducting the cleanup shall be responsible for these notifications.

(11) Financial assurances. The department shall, as appropriate, require financial assurance mechanisms at sites where the cleanup action selected includes engineered and/or institutional controls. It is presumed that financial assurance mechanisms will be required unless the PLP can demonstrate that sufficient financial resources are available and in place to provide for the long-term effectiveness of engineered and institutional controls adopted. Financial assurances shall be of sufficient amount to cover all costs associated with the operation and maintenance of the cleanup action, including institutional controls, compliance monitoring, and corrective measures.

(a) Mechanisms. Financial assurance mechanisms may include one or more of the following: A trust fund, a surety bond, a letter of credit, financial test, guarantee, standby trust fund, government bond rating test, government financial test, government guarantee, government fund, or financial assurance mechanisms required under another law (for example, requirements for solid waste landfills or treatment, storage, and disposal facilities) that meets the requirements of this section.

(b) Exemption from requirement. The department shall not require financial assurances if persons conducting the cleanup can demonstrate that requiring financial assurances will result in the PLPs for the site having insufficient funds to conduct the cleanup or being forced into bankruptcy or similar financial hardship.

(12) Removal of restrictions. If the conditions at the site requiring an institutional control under subsection (4) of this

section no longer exist, then the owner may submit a request to the department that the restrictive covenant or other restrictions be eliminated. The restrictive covenant or other restrictions shall be removed, if the department, after public notice and opportunity for comment, concurs.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-440, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-440, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-440, filed 1/28/91, effective 2/28/91.]

WAC 173-340-450 Releases from underground storage tanks. (1) Purpose. The purpose of this section is to set forth the requirements for addressing releases that may pose a threat to human health or the environment from an underground storage tank (UST) regulated under chapter 90.76 RCW.

(a) Releases from USTs exempted under chapter 90.76 RCW and rules adopted therein are still subject to all other requirements of this chapter.

(b) Unless the department requires otherwise, UST owners and UST operators regulated under chapter 90.76 RCW shall comply with the requirements in this section after confirmation of an UST release that may pose a threat to human health or the environment.

(2) Initial response. Within twenty-four hours of confirmation of an UST release, the UST owner or the UST operator shall perform the following actions:

(a) Report the UST release to the department and other authorities with jurisdiction, in accordance with rules adopted under chapter 90.76 RCW and any other applicable law;

(b) Remove as much of the hazardous substance from the UST as is possible and necessary to prevent further release to the environment;

(c) Eliminate or reduce any fire, explosion or vapor hazards in such a way as to minimize any release of hazardous substances to surface water and ground water; and

(d) Visually inspect any aboveground releases or exposed belowground releases and prevent the hazardous substance from spreading into surrounding soils, ground water and surface water.

(3) Interim actions.

(a) As soon as possible but no later than twenty days following confirmation of an UST release, the UST owner or the UST operator shall perform the following interim actions:

(i) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that may have migrated from the UST into structures in the vicinity of the site, such as sewers or basements;

(ii) Reduce the threat to human health and the environment posed by contaminated soils that are excavated or discovered as a result of investigation or cleanup activities. Treatment, storage and disposal of soils must be carried out in compliance with all applicable federal, state and local requirements;

(iii) Test for hazardous substances in the environment where they are most likely to be present. Such testing shall be done in accordance with a sampling and analysis plan prepared under WAC 173-340-820. The sample types, sample locations, and measurement methods shall be based on the nature of the stored substance, type of subsurface soils, depth to ground water and other factors as appropriate for identifying the presence and source of the release. If contaminated soil is found in contact with the ground water or soil contamination appears to extend below the lowest soil sampling depth, then testing shall include the installation of ground water monitoring wells to test for the presence of possible ground water contamination. Information gathered for the site check or closure site assessment conducted under rules adopted under chapter 90.76 RCW, which sufficiently characterizes the releases at the site, may be substituted for the testing required under this paragraph;

(iv) The testing performed under (a)(iii) of this subsection shall use the analytical methods specified in WAC 173-340-830 and include, at a minimum, the following:

(A) For petroleum product releases, the concentration(s) of hazardous substances potentially present at the site, as appropriate for the type of petroleum product(s) released. The minimum testing requirements are specified in Table 830-1.

(B) The hazardous substance stored and any likely decomposition by-products where a hazardous substance other than petroleum may be present; and

(C) Any other tests required by the department; and

(v) Investigate for the presence of free product.

(4) Free product removal. At sites where investigations indicate free product is present, the UST owner or the UST operator shall conduct, as soon as possible after discovery, an interim action to remove the free product while continuing, as necessary, any other actions required under this section. To accomplish this the UST owner or UST operator shall:

(a) Conduct free product removal to the maximum extent practicable and in a manner that minimizes the spread of hazardous substances, by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site. The objective of free product removal system must be, at a minimum, to stop the free product migration;

(b) Properly treat, discharge, or dispose of any hazardous substance, water, sludge or any other materials collected in the free product removal process in compliance with all applicable local, state, and federal regulations and permits; and

(c) Handle all flammable products safely to prevent fires and explosions.

(5) Reporting requirements. The following reports are required to be submitted to the department:

(a) Status report. Within twenty days after an UST release, the UST owner or UST operator shall submit a status report to the department. The status report shall identify if known, the types, amounts, and locations of hazardous substances released, how the release occurred, evidence confirming the release, actions taken under subsections (2) and (3) of this section, any planned remedial actions, and any results of work done up to the time of the report. This report may be provided verbally to the department.

(b) Site characterization reports. Within ninety days after release confirmation, unless directed to do otherwise by the department, the UST owner or UST operator shall submit a report to the department about the site and nature of the release. This report shall be submitted to the department in writing and may be combined with the twenty-day status

report, if the information required is available at that time. The site characterization report shall include, at a minimum, the following information:

(i) The information required for the status report under (a) of this subsection;

(ii) A site conditions map indicating approximate boundaries of the property, all areas where hazardous substances are known or suspected to be located, and sampling locations. This map may consist of a sketch of the site at a scale sufficient to illustrate this information;

(iii) Available data regarding surrounding populations, surface and ground water quality, use and approximate location of wells potentially affected by the release, subsurface soil conditions, depth to ground water, direction of ground water flow, proximity to and potential for affecting surface water, locations of sewers and other potential conduits for vapor or free product migration, surrounding land use, and proximity to sensitive environments;

(iv) Results of tests for hazardous substances performed under subsection (3)(a)(iii) and (iv) of this section;

(v) Results of the free product investigation required under subsection (3)(a)(v) of this section;

(vi) Results of all completed site investigations, interim actions and cleanup actions and a description of any remaining investigations, cleanup actions and compliance monitoring that are planned or underway; and

(vii) Information on the free product removal efforts at sites where investigations indicate free product is present. This shall include, at a minimum, the following information:

(A) Name of the person responsible for implementing the free product removal measures;

(B) The estimated quantity, type, and thickness of free product observed or measured in wells, boreholes and excavations;

(C) The type of free product recovery system used;

(D) The location of any on-site or off-site discharge during the recovery operation;

(E) The type of treatment applied to, and the effluent quality expected from, any discharge;

(F) The steps taken and planned to obtain necessary permits for any discharge;

(G) Disposition of recovered free product; and

(viii) Any other information required by the department.

(6) Remedial investigation and feasibility study.

(a) If the initial cleanup actions taken at an UST site do not achieve cleanup levels throughout the site, a remedial investigation and feasibility study may need to be conducted in accordance with WAC 173-340-350. The scope of a remedial investigation and feasibility study will depend on the informational needs at the site. UST owners and operators shall conduct a remedial investigation and feasibility study for sites where the following conditions exist:

(i) There is evidence that the release has caused hazardous substances to be present in the ground water in excess of the ground water standards adopted under chapter 90.48 RCW or cleanup levels in WAC 173-340-720 (Table 720-1);

(ii) Free product is found; or

(iii) Where otherwise required by the department.

(b) UST owners and UST operators shall submit the information collected for the remedial investigation/feasibility study to the department as soon as practicable. The information may be included with other reports submitted under this section.

(c) If the department determines, based on the results of the remedial investigation/feasibility study or other information, that additional remedial action is required, the department may require the UST owner or the UST operator to submit engineering documents as described in WAC 173-340-400.

(7) Cleanup actions. Unless directed to do otherwise by the department, cleanup actions performed by UST owners or UST operators shall comply with the cleanup standards described in WAC 173-340-700 through 173-340-760 and the requirements for the selection of cleanup actions in WAC 173-340-350 through 173-340-390.

(8) Independent cleanup actions. In addition to work performed under subsections (2) through (5), and (7) of this section, UST owners or UST operators performing independent cleanup actions shall:

(a) Notify the department of their intention to begin cleanup. This can be included with other reports under this section;

(b) Comply with any conditions imposed by the department to assure adequate protection of human health and the environment; and

(c) Within ninety days of completion of the cleanup action, submit the results of all investigations, interim and cleanup actions and compliance monitoring not previously submitted to the department.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-450, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-450, filed 1/28/91, effective 2/28/91.]

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).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-510, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-510, filed 4/3/90, effective 5/4/90.]

WAC 173-340-515 Independent remedial actions. (1) **Purpose.** An independent remedial action is a remedial action conducted without department oversight or approval and not under an order, agreed order or consent decree. This section describes the procedures and requirements for independent remedial actions. See WAC 173-340-545 for additional requirements pertaining to independent remedial actions anticipated to be part of a private right of action.

(2) **Applicability.** Nothing in this chapter shall preclude potentially liable persons from conducting independent remedial actions at sites not in discussions or negotiations for, or under, an order or decree. However, a potentially liable person may not conduct independent remedial actions after commencing discussions or negotiations for an agreed order or consent decree unless:

(a) Such action does not foreclose or preempt the remedial actions under discussion or negotiation and such action does not foreclose the selection of a cleanup action; or

(b) The potentially liable person has provided reasonable notice to the department and the department does not object to such action.

(3) **Standards.**

(a) In reviewing independent remedial actions, the department shall determine whether the remedial actions meet the substantive requirements of 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 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. 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. This does not preclude earlier reporting of such actions or reporting of site investigations. 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 under-way. If a restrictive 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.

(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.** The department may provide informal advice and assistance (technical consultations) on the administrative and technical requirements of this chapter to persons conducting or otherwise interested in an independent remedial action. Such advice or assistance is advisory only and not binding on the department. This advice may include written opinions. These written opinions shall be limited to whether the independent remedial actions or proposals for those actions meet the substantive requirements of this chapter and/or whether the department believes further remedial action is necessary at the facility. 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:

(a) Provide a written opinion regarding the remedial actions performed or proposed at the site;

(b) Provide a written opinion regarding the remedial actions performed at the site and remove the site or a portion of the site from the hazardous sites list if the department has sufficient information to show that the independent remedial actions are appropriate to characterize and address contami-

nation at the site, as provided for in WAC 173-340-330 (4)(b); or

(c) Provide a written opinion describing the deficiencies with the remedial action or proposal for a remedial action at the site.

It is the department's policy, in conducting reviews under this subsection, to promote independent remedial actions by delisting sites or portions of sites whenever petitions and supporting documents show that the actions taken are appropriate to characterize and address the contamination at the site.

(6) **Cost of technical consultations.** For information on the payment of remedial action costs, see WAC 173-340-550(6).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-515, filed 2/12/01, effective 8/15/01.]

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. The proposal shall contain:

(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 who are expected to conduct the remainder of the cleanup.

(i) The department and the office of the attorney general shall determine whether the proposal provides a sufficient basis for negotiations, and shall deliver to the potentially liable person within 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 department, any person who requests a prospective purchaser agreement and receives a notice accepting the request under (f) of this subsection shall enter into a prepayment agreement with the department consistent with WAC 173-340-550(7) before negotiations will begin.

(k) Time limits for negotiations. The department shall set the time period and starting date for negotiations. The department and the office of the attorney general shall then negotiate with those potentially liable persons who have received a notice under (f) of this subsection that their proposal was sufficient to proceed with negotiations. Negotiations may address one or more phases of remedial action. 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 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-520, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-520, filed 4/3/90, effective 5/4/90.]

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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-530, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-530, filed 1/26/96, effective 2/26/96; 90-08-086, § 173-340-530, filed 4/3/90, effective 5/4/90.]

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

(a) Except for emergency remedial actions, written notification has been mailed 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*);

(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 covenant under WAC 173-340-440, where documents are required by the following sections, the documents prepared need not be the same in title or format. Other documents can be used in place of the documents specified in these sections as long as sufficient information is included in the record to serve the same purpose. When using the following sections to determine substantial equivalence it should be recognized that there are often many alternative methods for cleanup of a facility that would comply with these provisions. When this chapter requires a consultation with, or an approval or determination by the department, such a consultation, approval or determination is not necessary for remedial actions to meet the substantial equivalence requirement under this section; however, the remedial action must still be conducted substantially equivalent with the substantive requirements of those provisions. In applying these sections, reference should be made to the other applicable sections of this chapter, with particular attention to WAC 173-340-130 (Administrative

principles), WAC 173-340-200 (Definitions), and WAC 173-340-210 (Usage).

(a) WAC 173-340-350 (Remedial investigation/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) WAC 173-340-700 through 173-340-760 (Cleanup standards); and

(l) WAC 173-340-810 through 173-340-850 (General provisions).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-545, filed 2/12/01, effective 8/15/01.]

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. The department shall charge an hourly rate based on direct staff costs plus support costs. It is the department's intention that the resulting hourly rate charged be less than the hourly rate typically charged by a comparably sized consulting firm providing similar services. The department shall use the following formula for computing hourly rates:

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

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

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

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

(a) Costs of direct activities are direct staff costs and other direct costs. Direct staff costs (DSC) are the costs of hours worked directly on a contaminated site, including salaries, retirement plan benefits, Social Security benefits, health care benefits, leave and holiday benefits, and other benefits required by law to be paid to, or on behalf of, employees. Other direct costs are costs incurred as a direct result of department staff working on a contaminated site including, for example, costs of: Travel related to the site, printing and publishing of documents about the site, purchase or rental of equipment used for the site, and contracted work for the site.

(b) Agency support costs are the costs of facilities, communications, personnel, fiscal, and other statewide and agency-wide services. The agency support cost multiplier (ASCM) used shall be the agency indirect rate approved by the agency's federal cognizant agency (which, as of July 1, 1993, was the United States Department of the Interior) for each fiscal year.

(c) Program support costs are the costs of administrative time spent by site managers and other staff who work directly on sites and a portion of the cost of management, clerical, policy, computer, financial, citizen technical advisor, and other support provided by other program staff to site managers and other staff who work directly on sites. Other activities of the toxics cleanup program not included in program support costs include, for example, community relations not related to a specific site, policy development, and a portion of the cost of nonsite management, clerical, policy, computer, financial, and other support staff. The program support cost multiplier (PSCM) used shall be calculated by dividing actual program support costs by the direct staff costs of all hours charged to site related work. This multiplier shall be evaluated at least biennially and any changes published in at least two publications of the *Site Register*. The calculation and source documents used in any revision shall be audited by either the state auditor's office or a private accounting firm. Audit results shall be available for public review. This multiplier shall not exceed 1.0 (one).

(3) Request for payment. When the department requests payment of remedial action costs it shall provide an itemized statement documenting the costs incurred.

(4) Interest charges. A charge of twelve percent interest (annual percentage rate, compounded monthly) shall accrue on all remedial action costs not paid within ninety days of the billing date, or within another longer time period designated by the department.

(5) Natural resource damages. Nothing in this section shall affect the authority of the department and the office of attorney general to recover natural resource damages.

(6) Independent remedial actions.

(a) The department may collect, from persons requesting a site-specific technical consultation under WAC 173-340-515, the costs incurred by the department in providing such advice and assistance.

(b) For situations where the department has decided to collect its costs, a refundable deposit of a reasonable amount will be required. The department's hourly costs shall be determined based on the method in 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 based on that person's ability to pay.

(d) The department shall waive collection of its costs, where appropriate, in providing technical assistance in support of an appropriate level of public participation or where

the department's time in responding to the request is de minimis.

(7) Prepayment of costs.

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

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

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-550, filed 2/12/01, effective 8/15/01. Statutory Authority: RCW 70.105D.030 (1)(f), 70.105D.040(2) and SB 5404. 93-24-064, § 173-340-550, filed 11/24/93, effective 12/25/93. Statutory Authority: Chapter 70.105D RCW. 90-08-086, § 173-340-550, filed 4/3/90, effective 5/4/90.]

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; public meetings or hearings; and the participation of regional citizens' advisory committees.

(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 173-340-720 for notice requirements on an off-property conditional point of compliance and cleanup levels for ground 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 covenants; 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 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.

(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 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.

(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;

(f) Posting signs at the facility;

(g) Notice in the *Site Register*;

(h) Notice through the Internet;

(i) Any other methods as determined by the department.

(7) *Site Register*. The department shall regularly publish, make available electronically, and maintain a publication called the *Site Register*, which provides notice of the following:

(a) Determinations of no further action under WAC 173-340-320;

(b) Results of site hazard rankings;

(c) Availability of annual and biennial reports;

(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;

(o) A list of available department publications, including guidance, technical reports and policies pertinent to remedial actions;

(p) The results of department review of reports on independent remedial actions submitted under WAC 173-340-515; 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.

(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, 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.

(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 uses and exposure scenarios, 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).

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; establishing citizen advisory groups for sites; or obtaining advice from the appropriate regional citizens' advisory committee.

(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.

(viii) 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 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 as part of the draft cleanup plan, provide notice to and seek comments from the city or county department with land use planning authority for real property subject to the restrictive covenant. The purpose of this notification is to solicit comment on whether the proposed restrictive covenant is consistent with any current or proposed land use plans.

(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. 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 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-600, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-600, filed 4/3/90, effective 5/4/90.]

WAC 173-340-610 Regional citizens' advisory committees. (1) The department shall establish regional citizens' advisory committees as part of a public participation program. The regional citizens' advisory committees are intended to promote meaningful and effective public involvement in the department's remedial action program under chapter 70.105D RCW. The committees will advise the department as to the concerns of citizens locally and regionally regarding the remedial actions within each committee's region, with emphasis on issues that affect the region as a whole, rather than site-specific concerns.

(2) Location. There shall be a regional citizens' advisory committee representing each geographic region of the state served by a regional office of the department.

(3) Membership. At any time, each committee shall have no fewer than five and no more than twelve members. The director shall, no later than July 1, 1990, appoint five members to each committee to represent citizens' interests in the region. These members shall serve three-year terms that may be renewed at the director's discretion. These members should represent citizen interests in the region.

(a) The director may appoint up to seven additional members to represent communities that may be affected by the remedial actions within each region. These members shall serve two-year terms that may be renewed at the director's discretion.

(b) At no time shall more than twenty-five percent of the membership of any committee consist of persons who are elected or appointed public officials or their representatives.

(c) The department shall advise the public as to whether any vacancies exist on the committees, and shall accept applications from interested citizens.

(d) The following persons shall not be eligible to serve on any committee:

(i) Persons whom the department has found are potentially liable persons under WAC 173-340-500 with regard to any facility that is currently the subject of department investigative, remedial or enforcement actions, not including compliance monitoring;

(ii) Agents or employees of such potentially liable persons as described in (d)(i) of this subsection; and

(iii) Agents or employees of the department.

(e) A member shall refrain from participating in a committee matter if that member for any reason cannot act fairly and in the public interest with regard to that matter.

(f) The director may dismiss a member for cause in accordance with the terms of the regional citizens' advisory committee charter.

(4) Meetings. The committees shall meet at least twice a year at the regional offices or elsewhere as agreed upon by a committee and the department. Appropriate department staff may attend these meetings. The department shall brief the committees on the program's major planned and ongoing activities for the year.

(a) The department and the committees may agree to additional meetings.

(b) Each committee will designate one of its members to serve as chair. The committee chairs shall meet every year with the program manager or his/her designee.

(c) All committee meetings shall be open to the public. The department shall inform the public of committee meetings.

(5) Resources allocated to the committees.

(a) The department shall determine, after consulting with the committees, the amount of staff time and other department resources that shall be available to the committees for each biennium.

(b) The department shall designate staff to work with the committees.

(c) Members shall be reimbursed for travel expenses (as provided for in chapter 43.03 RCW) for any meetings approved by the department.

(6) Responsibilities. The committees are directed to:

(a) Meet at least twice annually;

(b) Inform citizens within each region as to the existence of the committees and their availability as a resource;

(c) Review the department's biennial program priorities, and advise the department of citizen concerns regarding the program priorities;

(d) Advise the department of community concerns about the cleanup program's activities and develop proposals for addressing these concerns. Committees may use issues at specific sites as a foundation for understanding regional issues;

(e) Annually prepare a brief report to the department describing:

(i) Major citizen concerns that have been brought to the committee's attention during the past year;

(ii) Any committee proposals or recommendations to address these concerns;

(iii) The committee's plans for the coming year; and

(iv) Any other information or issues which the committee believes appropriate for inclusion.

(f) The committees are encouraged to work with the department and the public to develop additional committee goals or responsibilities.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-610, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-610, filed 4/3/90, effective 5/4/90.]

WAC 173-340-700 Overview of cleanup standards. (1) **Purpose.** This section provides an overview of the methods for establishing cleanup standards that apply to a release or threatened release of a hazardous substance at a site. If there are any inconsistencies between this section and any

specifically referenced section, the referenced section shall govern.

(2) **Explanation of term "cleanup level."** A cleanup level is 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 levels, in combination with points of compliance, typically define the area or volume of soil, water, air or sediment at a site that must be addressed by the cleanup action.

(3) **Explanation of term "cleanup standards."** Cleanup standards consist of the following:

(a) Cleanup levels for hazardous substances present at the site;

(b) The location where these cleanup levels must be met (point of compliance); and

(c) Other regulatory requirements that apply to the site because of the type of action and/or location of the site ("applicable state and federal laws").

(4) **Relationship between cleanup standards and cleanup actions.**

(a) Cleanup standards are identified for the particular hazardous substances at a site and the specific areas or pathways, such as land or water, where humans and the environment can become exposed to these substances. This part provides uniform methods statewide for identifying cleanup standards and requires that all cleanups under the act meet these standards. The actual degree of cleanup may vary from site to site and will be determined by the cleanup action alternative selected under WAC 173-340-350 through 173-340-390.

(b) For most sites, there are several cleanup technologies or combinations of cleanup technologies ("cleanup action alternatives") that may be used to comply with cleanup standards at individual sites. Other parts of this rule govern the process for planning and deciding on the cleanup action to be taken at a site. This may include establishing "remediation levels," or the concentrations of hazardous substances above which a particular cleanup technology will be applied. See WAC 173-340-350 through 173-340-390. WAC 173-340-355 contains detailed information on establishing remediation levels. WAC 173-340-410 specifies the monitoring required to ensure that the remedy is effective.

(c) Where a cleanup action involves containment of soils with hazardous substances above cleanup levels, the cleanup action may be determined to comply with cleanup standards, provided the compliance monitoring program is designed to ensure the long-term integrity of the containment system, and the other requirements for containment in this chapter are met.

(5) **Methods for setting cleanup levels.** The first step in setting cleanup levels is to identify the nature of the contamination, the potentially contaminated media, the current and potential pathways of exposure, the current and potential receptors, and the current and potential land and resource uses. A conceptual site model may be developed as part of this scoping process. Cleanup levels may then be established for each media. Both the conceptual site model and cleanup levels may be refined as additional information is collected during the remedial investigation/feasibility study. See WAC 173-340-708(3) for additional information on how to determine current and potential future land and resource uses for the conceptual site model. These rules provide three approaches for establishing cleanup levels:

(a) **Method A: ARARs and Tables.** On some sites, the cleanup action may be routine (WAC 173-340-200) or may involve relatively few hazardous substances. Under Method A, cleanup levels at these sites are set at concentrations at least as stringent as concentrations specified in applicable state and federal laws (ARARs) and Tables 720-1, 740-1, and 745-1 of this chapter.

Method A cleanup levels for hazardous substances that are deemed indicator hazardous substances at the site under WAC 173-340-708(2) and are not addressed under applicable state and federal laws or Tables 720-1, 740-1, and 745-1 must be established at concentrations which do not exceed the natural background concentration or the practical quantitation limit, whichever is higher.

For soil contamination, the potential impact of hazardous substances on terrestrial ecological receptors must be evaluated under WAC 173-340-7490 through 173-340-7494. Specifically, either an exclusion must be established for the site under WAC 173-340-7491 or a terrestrial ecological evaluation must be conducted under WAC 173-340-7492 or 173-340-7493. The terrestrial ecological evaluation may result in a more stringent Method A soil cleanup level than is required to protect human health.

Except where institutional controls are required by WAC 173-340-440(4), site cleanups that achieve Method A cleanup levels may be used without future restrictions on the property due to residual levels of contamination.

(b) **Method B: Universal method.** Method B is the universal method for determining cleanup levels for all media at all sites. Under Method B, cleanup levels for individual hazardous substances are established using applicable state and federal laws and the risk equations and other requirements specified in WAC 173-340-720 through 173-340-760.

Method B is divided into two tiers: Standard and modified. Standard Method B uses generic default assumptions to calculate cleanup levels. Modified Method B provides for the use of chemical-specific or site-specific information to change selected default assumptions, within the limitations allowed in WAC 173-340-708. Modified Method B may be used to establish cleanup levels.

Modified Method B may also be used in a quantitative risk assessment to help assess the protectiveness of a remedy by modifying input parameters as described in WAC 173-340-720 through 173-340-750 or by using other modifications that meet the requirements of WAC 173-340-702 and 173-340-708. See WAC 173-340-355 and 173-340-357 for more information on remediation levels and quantitative risk assessment.

For individual carcinogens, both standard and modified Method B cleanup levels are based upon the upper bound of the estimated excess lifetime cancer risk of one in one million (1×10^{-6}).

For individual noncarcinogenic substances, both standard and modified Method B cleanup levels are set at concentrations which are anticipated to result in no acute or chronic toxic effects on human health (that is, hazard quotient of one

(1) or less) and no significant adverse effects on the propagation of aquatic and terrestrial organisms.

Where a hazardous waste site involves multiple hazardous substances and/or multiple pathways of exposure, then standard and modified Method B cleanup levels for individual substances must be adjusted downward for additive health effects in accordance with the procedures in WAC 173-340-708 if the total excess lifetime cancer risk for a site exceeds one in one hundred thousand (1×10^{-5}) or the hazard index for substances with similar noncarcinogenic toxic effects exceeds one (1).

For soil contamination, the potential impact of hazardous substances on terrestrial ecological receptors must be evaluated under WAC 173-340-7490 through 173-340-7494. Specifically, either an exclusion must be established for the site under WAC 173-340-7491 or a terrestrial ecological evaluation must be conducted under WAC 173-340-7492 or 173-340-7493. The terrestrial ecological evaluation may result in a more stringent Method B soil cleanup level for the site than is required to protect human health.

Except where institutional controls are required by WAC 173-340-440(4), site cleanups that achieve Method B cleanup levels may be used without future restrictions on the property due to residual levels of contamination.

(c) **Method C: Conditional method.** Compliance with cleanup levels developed under Method A or B may be impossible to achieve or may cause greater environmental harm. In those situations, Method C cleanup levels for individual hazardous substances may be established for surface water, ground water, and air. Method C industrial soil and air cleanup levels may also be established at industrial properties that meet the criteria in WAC 173-340-745.

Under Method C, cleanup levels for individual hazardous substances are established using applicable state and federal laws and the risk equations and other requirements specified in WAC 173-340-720 through 173-340-760. Method C is divided into two tiers: Standard and modified. Standard Method C uses generic default assumptions to calculate cleanup levels. Modified Method C provides for the use of chemical-specific or site-specific information to change selected default assumptions, within the limitations allowed in WAC 173-340-708. Modified Method C may be used to establish cleanup levels.

Modified Method C may also be used in a quantitative risk assessment to help assess the protectiveness of a remedy by modifying input parameters as described in WAC 173-340-720 through 173-340-750 or by using other modifications that meet the requirements of WAC 173-340-702 and 173-340-708. See WAC 173-340-355 and 173-340-357 for more information on remediation levels and quantitative risk assessment.

For individual carcinogens, both standard and modified Method C cleanup levels are based upon the upper bound of the estimated lifetime cancer risk of one in one hundred thousand (1×10^{-5}).

For individual noncarcinogenic substances, both standard and modified Method C cleanup levels are set at concentrations which are anticipated to result in no acute or chronic toxic effects on human health (that is, hazard quotient of one (1) or less) and no significant adverse effects on the protection and propagation of aquatic and terrestrial organisms.

Where a hazardous waste site involves multiple hazardous substances and/or multiple pathways of exposure, then both standard and modified Method C cleanup levels for individual substances must be adjusted downward for additive health effects in accordance with the procedures in WAC 173-340-708 if the total excess lifetime cancer risk for a site exceeds one in one hundred thousand (1×10^{-5}) or the hazard index for substances with similar noncarcinogenic toxic effects exceeds one (1).

For soil contamination, the potential impact of hazardous substances on terrestrial ecological receptors must be evaluated under WAC 173-340-7490 through 173-340-7494. Specifically, either an exclusion must be established for the site under WAC 173-340-7491 or a terrestrial ecological evaluation must be conducted under WAC 173-340-7492 or 173-340-7493. The terrestrial ecological evaluation may result in a more stringent Method C soil cleanup level for the site than is required to protect human health.

Site cleanups establishing Method C cleanup levels must have restrictions placed on the property (institutional controls) to ensure future protection of human health and the environment.

(6) **Requirements for setting cleanup levels.** Several requirements apply to cleanups under any of the three methods. Some of these requirements, such as the identification of applicable state and federal laws, describe analyses used along with Methods A, B or C in order to set cleanup levels for particular substances at a site. Others describe the technical procedures to be used.

(a) **Applicable state and federal laws.** RCW 70.105D.030 (2)(d) requires the cleanup standards in these rules to be "at least as stringent as all applicable state and federal laws." In addition to establishing minimum requirements for cleanup standards, applicable state and federal laws may also impose certain technical and procedural requirements for performing cleanup actions. These requirements are described in WAC 173-340-710 and are similar to the "ARAR" (applicable, relevant and appropriate requirements) approach of the federal superfund law. Sites that are cleaned up under an order or decree may be exempt from obtaining a permit under certain other laws but they must still meet the substantive requirements of these other laws. (See WAC 173-340-710(9).)

(b) **Cross-media contamination.** In some situations, migration of hazardous substances from one medium may cause contamination in a second media. For example, the release of hazardous substances in soil may cause ground water contamination. Under Methods A, B, and C, cleanup levels must be established at concentrations that prevent violations of cleanup levels for other media.

(c) **Risk assessment procedures.** The analyses performed under Methods B and C use several default assumptions for defining cleanup levels for carcinogens and noncarcinogens. The individual default assumptions and procedures for modifying these assumptions based on site-specific information are specified in WAC 173-340-708 and 173-340-720 through 173-340-750. WAC 173-340-708 also provides rules for use of indicator hazardous substances. The standards for

review of new scientific information are described in WAC 173-340-702 (14), (15) and (16).

(d) **Natural background and analytical considerations.** In some cases, cleanup levels calculated using the methods specified in this chapter are less than natural background levels or levels that can be reliably measured. In those situations, the cleanup level shall be established at a concentration equal to the practical quantitation limit or natural background concentration, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional information.

(7) **Procedures for demonstrating compliance with cleanup standards.** Setting cleanup standards also involves being able to demonstrate that they have been met. This involves specifying where on the site the cleanup levels must be met ("points of compliance"), how long it takes for a site to meet cleanup levels ("restoration time frame"), and conducting sufficient monitoring to demonstrate that the cleanup standards have been met and will continue to be met in the future. The provisions for establishing points of compliance are in WAC 173-340-720 through 173-340-750. The provisions for establishing restoration time frames are in WAC 173-340-360. The compliance monitoring plan prepared under WAC 173-340-410 specifies precisely how these are measured for each site. At sites where remediation levels are used, the compliance monitoring plan will also need to describe the performance monitoring to be conducted to demonstrate the remediation levels have been achieved.

(8) **Specific procedures for setting cleanup levels at petroleum contaminated sites.** In addition to the other requirements in this section, this chapter provides for the following specific procedures to establish cleanup levels at sites where there has been a release of total petroleum hydrocarbons (TPH) and hazardous substances associated with a release of TPH.

(a) For soil contamination, the potential impact of TPH on terrestrial ecological receptors must be evaluated under WAC 173-340-7490 through 173-340-7494. Specifically, either an exclusion must be established for the site under WAC 173-340-7491 or a terrestrial ecological evaluation must be conducted under WAC 173-340-7492 or 173-340-7493. The terrestrial ecological evaluation may result in a more stringent soil cleanup level than is required to protect human health.

(b) It is necessary to analyze for and evaluate certain carcinogenic and noncarcinogenic hazardous substances that may be associated with a release of TPH. These are identified in Table 830-1. In cases where the cleanup level for one or more of these associated hazardous substances is exceeded but the TPH cleanup level is not, the cleanup level shall be based on the associated hazardous substance.

(i) **Method A.** Method A may be used to establish cleanup levels for TPH and associated hazardous substances at qualifying sites (see WAC 173-340-704). At these sites, the presence, location and concentration of TPH may be established by using the NWTPH method described under Method 6 (see WAC 173-340-830 (3)(a)(vi)). The NWTPH method is a simplified, and relatively inexpensive, analytical method for evaluating TPH. Method A cleanup levels have been determined for four common petroleum mixtures: Gasoline range organics (GRO), diesel range organics (DRO), heavy oils, and electrical insulating mineral oil, as well as many hazardous substances that may be associated with the TPH. A site owner may decide to use Method A for some substances or media and Method B or C for others, depending upon site conditions and qualifications.

(ii) **Method B and Method C tiered approach.** This chapter provides for a three-tiered approach for establishing Method B and Method C cleanup levels at sites that involve a release of TPH. These tiers are not required to be approached sequentially (that is, the process may be started at any tier). The tiered process allows one to calculate different cleanup levels for TPH and associated hazardous substances using progressively more complex and site-specific information, and also allows for basing the cleanup levels on the presence or absence of exposure pathways, determined as part of the conceptual site model. In establishing a TPH cleanup level using the tiered process, it is still necessary to comply with other requirements and procedures under WAC 173-340-700 through 173-340-750.

(A) **Conceptual site model.** The first step in setting Method B or C cleanup levels for TPH is to identify the nature of the contamination, the potentially contaminated media, the current and potential pathways of exposure, the current and potential receptors, and the current and potential land and resource uses. A conceptual site model should be developed as part of this scoping process. See WAC 173-340-708(3) for additional information on how to determine current and potential future land and resource uses for the conceptual site model.

(B) **General description of the three tiers.**

(I) Tier 1 consists of the standard Method B and Method C formulas and requirements under WAC 173-340-720 through 173-340-750 for each applicable pathway identified by the conceptual site model, including specific requirements set forth in those sections for petroleum mixtures.

(II) Tier 2 consists of the site-specific use of modified Method B and Method C formulas and requirements under WAC 173-340-720 through 173-340-750 for each applicable exposure pathway identified by the conceptual site model; and inclusion and development of additional, site-specific exposure pathways not addressed in Method A or Tier 1.

(III) Tier 3 consists of the site-specific use of standard or modified Method B and Method C formulas and requirements for each applicable exposure pathway identified by the conceptual site model and the use of new scientific information to establish a cleanup level as provided under WAC 173-340-702 (14), (15) and (16). It is considered a more complex evaluation in terms of technical sophistication (such as the use of new fate and transport models), data needs, cost and time.

(IV) A single tier may be used for all exposure pathways or more than one tier may be used when there are multiple exposure pathways.

(C) **Fractionated approach.** Method B and Method C cleanup levels for TPH are determined using the fractionated analytical approach for petroleum as described under Method 6 (see WAC 173-340-830 (3)(a)(vi)). This approach divides the TPH mixture into equivalent carbon numbers. Use of the fractionated approach requires testing or knowledge to define

product composition as described under subsection (8)(b)(ii)(D) of this section ("Determination of product composition"). Cleanup levels are then calculated using reference doses that have been determined by the department for each fraction. Cleanup levels also need to consider the measured or predicted ability of the fractions to migrate from one medium to other media. Where multiple pathways of exposure for a particular medium are identified in the conceptual site model, the most stringent of the concentrations calculated for the various pathways becomes the cleanup level. For example, for soil contamination, if the direct contact and leaching pathways are potential exposure pathways, then a soil concentration would be calculated for each pathway and the lowest calculated concentration would become the cleanup level.

(D) **Determination of product composition.** Product composition may be determined by analyzing each sample in accordance with the VPH/EPH method described under Method 6 (see WAC 173-340-830 (3)(a)(vi)). Alternatively, product composition may be determined by one of the following methods:

(I) Correlation. Where WTPH or NWTPH methods described in Method 6 are used to collect and analyze the presence, location and concentration of TPH, knowledge of the fraction-specific composition of the petroleum released at the site may be based on analysis and correlation of a portion of the site samples with both the VPH/EPH and WTPH/NWTPH methods.

(II) Retrofitting. Where WTPH or NWTPH methods were used to collect and analyze the presence, location and concentration of TPH before the effective date of this provision, knowledge of the fraction-specific composition of the petroleum released at the site may be based on the fraction-specific composition assumptions used by the department to calculate Method A cleanup levels, which the department shall publish in guidance. If the identity of the petroleum product released at the site is not known, or is a mixture of products, retrofitting under this provision shall be based on the composition that yields the lowest TPH cleanup level.

(E) **Consultation with the department.** Because of the complexity of the development of site-specific Method B and Method C petroleum cleanup levels using the second or third tiers described above, or the use of correlated or retrofitted data, persons planning on using these methods are encouraged to contact the department to obtain appropriate technical guidance.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-700, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-700, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-700, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-700, filed 4/3/90, effective 5/4/90.]

WAC 173-340-702 General policies. (1) **Purpose.** This section defines the general policies and principles that shall be followed when establishing and implementing cleanup standards. This section shall be used in combination with other sections of this chapter.

(2) **Policy on expediting cleanups.** Establishing cleanup standards and selecting an appropriate cleanup action involves many technical and public policy decisions. This chapter is intended to constrain the range of decisions made on individual sites to promote expeditious cleanups.

(3) **Goal for cleanups.** The Model Toxics Control Act contains policies that state, in part, each person has a fundamental and inalienable right to a healthful environment and it is essential that sites be cleaned up well. Consistent with these policies, cleanup standards and cleanup actions selected under this chapter shall be established that provide conservative estimates of human health and environmental risks that protect susceptible individuals as well as the general population.

(4) **Current and potential site and resource uses.** Cleanup standards and cleanup actions selected under this chapter shall be established that protect human health and the environment for current and potential future site and resource uses.

(5) **Presumption for cleanup actions.** Cleanup actions that achieve cleanup levels at the applicable point of compliance under Methods A, B, or C (as applicable) and comply with applicable state and federal laws shall be presumed to be protective of human health and the environment.

(6) **Cost considerations.** Except as provided for in applicable state and federal laws, cost shall not be a factor in determining what cleanup level is protective of human health and the environment. In addition, where specifically provided for in this chapter, cost may be appropriate for certain other determinations related to cleanup standards such as point of compliance. Cost shall, however, be considered when selecting an appropriate cleanup action.

(7) **Cleanup action alternatives.** At most sites, there is more than one hazardous substance and more than one pathway for hazardous substances to get into the environment. For many sites there is more than one method of cleanup (cleanup action component) that could address each of these. When evaluating cleanup action alternatives it is appropriate to consider a representative range of cleanup action components that could address each of these as well as different combinations of these components to accomplish the overall site cleanup.

(8) **Cross-media impacts.** The cleanup of a particular medium at a site will often affect other media at the site. These cross-media impacts shall be considered when establishing cleanup standards and selecting a cleanup action. Cleanup actions conducted under this chapter shall use appropriate engineering controls or other measures to minimize these cross-media impacts.

(9) **Relationship between cleanup levels and cleanup actions.** In general, cleanup levels must be met throughout a site before the site will be considered clean. A cleanup action that leaves hazardous substances on a site in excess of cleanup levels may be acceptable as long as the cleanup action complies with WAC 173-340-350 through 173-340-390. However, these rules are intended to promote thorough cleanups rather than long-term partial cleanups or containment measures.

(10) **Relationship to federal cleanup law.** When evaluating cleanup actions performed under the federal cleanup law, the department shall consider WAC 173-340-350, 173-340-355, 173-340-357, 173-340-360, 173-340-410, 173-340-

420, 173-340-440, 173-340-450, 173-340-700 through 173-340-760, and 173-340-830 to be legally applicable requirements under Section 121(d) of the Federal Cleanup Law.

(11) **Reviewing and updating cleanup standards.** The department shall review and, as appropriate, update WAC 173-340-700 through 173-340-760 at least once every five years.

(12) **Applicability of new cleanup levels.**

(a) For cleanup actions conducted by the department, or under an order or decree, the department shall determine the cleanup level that applies to a release based on the rules in effect under this chapter at the time the department issues a final cleanup action plan for that release.

(b) In reviewing the adequacy of independent remedial actions, the department shall determine the cleanup level that applies to a release based on the rules in effect at the time the final cleanup action for that release began or in effect when the department reviews the cleanup action, whichever is less stringent.

(c) A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provisions in this chapter on cleanup levels, unless the department determines, on a case-by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment.

(d) Nothing in this subsection constitutes a settlement or release of liability under the Model Toxics Control Act.

(13) **Institutional controls.** Institutional controls shall be required whenever any of the circumstances identified in WAC 173-340-440(4) are present at a site.

(14) **Burden of proof.** Any person responsible for undertaking a cleanup action under this chapter who proposes to:

(a) Use a reasonable maximum exposure scenario other than the default provided for each medium;

(b) Use assumptions other than the default values provided for in this chapter;

(c) Establish a cleanup level under Method C; or

(d) Use a conditional point of compliance, shall have the burden of demonstrating to the department that requirements in this chapter have been met to ensure protection of human health and the environment. The department shall only approve of such proposals when it determines that this burden of proof is met.

(15) **New scientific information.** The department shall consider new scientific information when establishing cleanup levels and remediation levels for individual sites. In making a determination on how to use this new information, the department shall, as appropriate, consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Any proposal to use new scientific information shall meet the quality of information requirements in subsection (16) of this section. To minimize delay in cleanups, any proposal to use new scientific information should be introduced as early in the cleanup process as possible. Proposals to use new scientific information may be considered up to the time of issuance of the final cleanup action plan governing the cleanup action for a site unless triggered as part of a periodic review under WAC 173-340-420 or through a reopener under RCW 70.105D.040 (4)(c).

(16) **Criteria for quality of information.**

(a) The intent of this subsection is to establish minimum criteria to be considered when evaluating information used by or submitted to the department proposing to modify the default methods or assumptions specified in this chapter or proposing methods or assumptions not specified in this chapter for calculating cleanup levels and remediation levels. This subsection does not establish a burden of proof or alter the burden of proof provided for elsewhere in this chapter.

(b) When deciding whether to approve or require modifications to the default methods or assumptions specified in this chapter for establishing cleanup levels and remediation levels or when deciding whether to approve or require alternative or additional methods or assumptions, the department shall consider information submitted by all interested persons and the quality of that information. When evaluating the quality of the information the department shall consider the following factors, as appropriate for the type of information submitted:

(i) Whether the information is based on a theory or technique that has widespread acceptance within the relevant scientific community;

(ii) Whether the information was derived using standard testing methods or other widely accepted scientific methods;

(iii) Whether a review of relevant available information, both in support of and not in support of the proposed modification, has been provided along with the rationale explaining the reasons for the proposed modification;

(iv) Whether the assumptions used in applying the information to the facility are valid and would ensure the proposed modification would err on behalf of protection of human health and the environment;

(v) Whether the information adequately addresses populations that are more highly exposed than the population as a whole and are reasonably likely to be present at the site; and

(vi) Whether adequate quality assurance and quality control procedures have been used, any significant anomalies are adequately explained, the limitations of the information are identified, and the known or potential rate of error is acceptable.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-702, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-702, filed 1/28/91, effective 2/28/91.]

WAC 173-340-703 Selection of indicator hazardous substances. (1) **Purpose.** When defining cleanup requirements at a site that is contaminated with a large number of hazardous substances, the department may eliminate from consideration those hazardous substances that contribute a small percentage of the overall threat to human health and the environment. The remaining hazardous substances shall serve as indicator hazardous substances for purposes of defining site cleanup requirements.

(2) **Approach.** If the department considers this approach appropriate for a particular site, the factors evaluated when eliminating individual hazardous substances from further consideration shall include:

(a) The toxicological characteristics of the hazardous substance that influence its ability to adversely affect human health or the environment relative to the concentration of the hazardous substance at the site, including consideration of essential nutrient requirements;

(b) The chemical and physical characteristics of the hazardous substance which govern its tendency to persist in the environment;

(c) The chemical and physical characteristics of the hazardous substance which govern its tendency to move into and through environmental media;

(d) The natural background concentrations of the hazardous substance;

(e) The thoroughness of testing for the hazardous substance at the site;

(f) The frequency that the hazardous substance has been detected at the site; and

(g) Degradation by-products of the hazardous substance.

(3) When the department determines that the use of indicator hazardous substances is appropriate for a particular site, it may also require biological testing to address potential toxic effects associated with hazardous substances eliminated from consideration under this subsection.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-703, filed 2/12/01, effective 8/15/01.]

WAC 173-340-704 Use of Method A. (1) **Applicability.** Method A may be used to establish cleanup levels at sites that have few hazardous substances and that meet one of the following criteria:

(a) Sites undergoing a routine cleanup action as defined in WAC 173-340-200; or

(b) Sites where numerical standards are available in this chapter or applicable state and federal laws for all indicator hazardous substances in the media for which the Method A cleanup level is being used.

(2) **Procedures.** Method A cleanup levels shall be established in accordance with the procedures in WAC 173-340-720 through 173-340-760. Method A cleanup levels shall be at least as stringent as all of the following:

(a) Concentrations of individual hazardous substances listed in Tables 720-1, 740-1, or 745-1 in this chapter;

(b) Concentrations of individual hazardous substances established under applicable state and federal laws;

(c) Concentrations that result in no significant adverse effects on the protection and propagation of terrestrial ecological receptors using the procedures specified in WAC 173-340-7490 through 173-340-7493, unless it is demonstrated under those sections that establishing a soil concentration is unnecessary; and

(d) For individual hazardous substances deemed indicator hazardous substances for the medium of concern under WAC 173-340-708(2) and not addressed under (a) and (b) of this subsection, concentrations that do not exceed natural background levels or the practical quantitation limit, whichever is higher, for the substance in question.

(3) **More stringent cleanup levels.** The department may establish Method A cleanup levels more stringent than those required by subsection (2) of this section, when based on a site-specific evaluation, the department determines that such levels are necessary to protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708.

(4) **Remediation levels.** Under Method A, the Method B formulas may be modified for the purpose of using a human health risk assessment to evaluate the protectiveness of a remedy. WAC 173-340-708 (3) and (10) describe the adjustments that can be made to the Method B formulas. Also see WAC 173-340-355 and 173-340-357 for more detailed information on remediation levels and quantitative risk assessment.

(5) **Inconsistencies.** If there are any inconsistencies between this section and any specifically referenced sections, the referenced section shall govern.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-704, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-704, filed 1/28/91, effective 2/28/91.]

WAC 173-340-705 Use of Method B. (1) **Applicability.** Method B is applicable to all sites. It shall be used to develop cleanup levels unless one or more of the conditions for using Method A or Method C are demonstrated to exist and the person conducting the cleanup action elects to use that method.

(2) **Cleanup levels.** Method B consists of two approaches, standard and modified. Standard Method B uses default formulas, assumptions, and procedures to develop cleanup levels. Under modified Method B chemical-specific or site-specific information may be used to change certain assumptions to calculate different cleanup levels. When the term "Method B" is used in this chapter, it means both standard and modified Method B. Method B cleanup levels shall be established in accordance with the procedures in WAC 173-340-720 through 173-340-760. Method B cleanup levels shall be at least as stringent as all of the following:

(a) Concentrations of individual hazardous substances established under applicable state and federal laws;

(b) Concentrations that are estimated to result in no adverse effects on the protection and propagation of aquatic life, and no significant adverse effects on terrestrial ecological receptors using the procedures specified in WAC 173-340-7490 through 173-340-7494;

(c) For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations which protect human health as determined by the following methods:

(i) Concentrations that are estimated to result in no acute or chronic toxic effects on human health as determined using a hazard quotient of one (1) and the procedures specified in WAC 173-340-720 through 173-340-760;

(ii) For known or suspected carcinogens, concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one million (1×10^{-6}) as determined using the procedures specified in WAC 173-340-720 through 173-340-760; and

(iii) Concentrations that eliminate or minimize the potential for food chain contamination as necessary to protect human health.

(3) **More stringent cleanup levels.** The department may establish Method B cleanup levels that are more stringent than those required by subsection (2) of this section, when based upon a site-specific evaluation, the department determines that such levels are necessary to protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708.

(4) **Multiple hazardous substances or pathways.** Concentrations of individual hazardous substances established under subsections (2) and (3) of this section, including those based on applicable state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with the procedures in WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(5) **Adjustments to cleanup levels based on applicable laws.** Where a cleanup level is based on an applicable state or federal law, and the level of risk upon which the applicable state and federal law is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level must be adjusted downward so that the total excess cancer risk and hazard index at the site does not exceed the limits established in subsection (4) of this section.

(6) **Limitation on adjustments.** Cleanup levels determined using Method B, including cleanup levels adjusted under subsections (4) and (5) of this section, shall not be set at levels below the practical quantitation limit or natural background, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional requirements on practical quantitation limits and natural background.

(7) **Remediation levels.** Method B formulas may be modified for the purpose of using a human health risk assessment to evaluate the protectiveness of a remedy. WAC 173-340-708 (3) and (10) describe the adjustments that can be made to the Method B formulas. Also see WAC 173-340-355 and 173-340-357 for more detailed information on remediation levels and quantitative risk assessment.

(8) **Inconsistencies.** If there are any inconsistencies between this section and any specifically referenced sections, the referenced section shall govern.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-705, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-705, filed 1/28/91, effective 2/28/91.]

WAC 173-340-706 Use of Method C. (1) **Applicability.** Method C cleanup levels represent concentrations that are protective of human health and the environment for specified site uses and conditions. A site (or portion of a site) that qualifies for a Method C cleanup level for one medium does not necessarily qualify for a Method C cleanup level in other media. Each medium must be evaluated separately using the criteria applicable to that medium. Method C cleanup levels may be used in the following situations:

(a) For surface water, ground water and air, Method C cleanup levels may be established where the person conducting the cleanup action can demonstrate that such levels comply with applicable state and federal laws, that all practicable methods of treatment are used, that institutional controls are implemented in accordance with WAC 173-340-440, and that one or more of the following conditions exist:

(i) Where Method A or B cleanup levels are below area background concentrations, Method C cleanup levels may be established at concentrations that are equal to area background concentrations, but in no case greater than concentrations specified in subsection (2) of this section;

(ii) Where attainment of Method A or B cleanup levels has the potential for creating a significantly greater overall threat to human health or the environment than attainment of Method C cleanup levels established under this chapter, Method C cleanup levels may be established at concentrations that minimize those overall threats, but in no case greater than concentrations specified in subsection (2) of this section. Factors that shall be considered in making this determination include:

(A) Results of a site-specific risk assessment;

(B) Duration of threats;

(C) Reversibility of threats;

(D) Magnitude of threats; and

(E) Nature of affected population.

(iii) Where Method A or B cleanup levels are below technically possible concentrations, Method C cleanup levels may be established at the technically possible concentrations, but in no case greater than levels specified in subsection (2) of this section.

(b) Method C soil cleanup levels may only be established where the person conducting the cleanup action can demonstrate that the area under consideration is an industrial property and meets the criteria for establishing industrial soil cleanup levels under WAC 173-340-745.

(c) Method C air cleanup levels may also be established for facilities qualifying as industrial property under WAC 173-340-745 and for utility vaults and manholes. (See WAC 173-340-750.)

(2) **Cleanup levels.** Method C consists of two approaches, standard and modified. Standard Method C uses default formulas, assumptions, and procedures to develop cleanup levels. Under modified Method C, chemical-specific or site-specific information may be used to change certain assumptions to calculate different cleanup levels. When the term "Method C" is used in this chapter, it means both standard and modified Method C. Method C cleanup levels shall be established in accordance with the procedures in WAC 173-340-720 through 173-340-760. Method C cleanup levels shall be at least as stringent as all of the following:

(a) Concentrations established under applicable state and federal laws;

(b) Concentrations that are estimated to result in no significant adverse effects on the protection and propagation of aquatic life, and no significant adverse effects on wildlife

using the procedures specified in WAC 173-340-7490 through 173-340-7494;

(c) For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations which are protective of human health as determined by the following methods:

(i) Concentrations that are estimated to result in no significant adverse acute or chronic toxic effects on human health as estimated using a hazard quotient of one (1) and the procedures defined in WAC 173-340-720 through 173-340-760;

(ii) For known or suspected carcinogens, concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one hundred thousand (1×10^{-5}) as determined using the procedures defined in WAC 173-340-720 through 173-340-760; and

(iii) Concentrations that eliminate or minimize the potential for food chain contamination as necessary to protect human health.

(3) **More stringent cleanup levels.** The department may establish Method C cleanup levels that are more stringent than those required by subsection (2) of this section when based upon a site-specific evaluation, the department determines that such levels are necessary to protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708.

(4) **Multiple hazardous substances or pathways.** Concentrations of individual hazardous substances established under subsections (2) and (3) of this section, including those based on applicable state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(5) **Adjustments to cleanup levels based on applicable laws.** When a cleanup level is based on an applicable state or federal law and the level of risk upon which the applicable law is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level must be adjusted downward so that the total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}) and the hazard index does not exceed one (1) at the site.

(6) **Limitation on adjustments.** Cleanup levels determined using Method C, including cleanup levels adjusted under subsections (4) and (5) of this section, shall not be set at levels below the practical quantitation limit or natural background, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional requirements on practical quantitation limits and natural background.

(7) **Remediation levels.** Method C formulas may be modified for the purpose of using a human health risk assessment to evaluate the protectiveness of a remedy. WAC 173-340-708 (3) and (10) describe the adjustments that can be made to the Method C formulas. Also see WAC 173-340-355 and 173-340-357 for more detailed information on remediation levels and quantitative risk assessment.

(8) **Inconsistencies.** If there are any inconsistencies between this subsection and any specifically referenced sections, the referenced section shall govern.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-706, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-706, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-706, filed 1/28/91, effective 2/28/91.]

WAC 173-340-708 Human health risk assessment procedures. (1) **Purpose.** This section defines the risk assessment framework that shall be used to establish cleanup levels, and remediation levels using a quantitative risk assessment, under this chapter. As used in this section, cleanup levels and remediation levels means the human health risk assessment component of these levels. This chapter defines certain default values and methods to be used in calculating cleanup levels and remediation levels. This section allows varying from these default values and methods under certain circumstances. When deciding whether to approve alternate values and methods the department shall ensure that the use of alternative values and methods will not significantly delay site cleanups.

(2) **Selection of indicator hazardous substances.**

When defining cleanup requirements at a site that is contaminated with a large number of hazardous substances, the department may eliminate from consideration those hazardous substances that contribute a small percentage of the overall threat to human health and the environment. The remaining hazardous substances shall serve as indicator hazardous substances for purposes of defining site cleanup requirements. See WAC 173-340-703 for additional information on establishing indicator hazardous substances.

(3) **Reasonable maximum exposure.**

(a) Cleanup levels and remediation levels shall be based on estimates of current and future resource uses and reasonable maximum exposures expected to occur under both current and potential future site use conditions, as specified further in this chapter.

(b) The reasonable maximum exposure is defined as the highest exposure that is reasonably expected to occur at a site under current and potential future site use. WAC 173-340-720 through 173-340-760 define the reasonable maximum exposures for ground water, surface water, soil, and air. These reasonable maximum exposures will apply to most sites where individuals or groups of individuals are or could be exposed to hazardous substances. For example, the reasonable maximum exposure for most ground water is defined as exposure to hazardous substances in drinking water and other domestic uses.

(c) Persons performing cleanup actions under this chapter may use the evaluation criteria in WAC 173-340-720 through 173-340-760, where allowed in those sections, to demonstrate that the reasonable maximum exposure scenar-

ios specified in those sections are not appropriate for cleanup levels for a particular site. For example, the criteria in WAC 173-340-720(2) could be used to demonstrate that the reasonable maximum exposure for ground water beneath a site does not need to be based on drinking water use. The use of an alternate exposure scenario shall be documented by the person performing the cleanup action. Documentation for the use of alternate exposure scenarios under this provision shall be based on the results of investigations performed in accordance with WAC 173-340-350.

(d) Persons performing cleanup actions under this chapter may also use alternate reasonable maximum exposure scenarios to help assess the protectiveness to human health of a cleanup action alternative that incorporates remediation levels and uses engineered controls and/or institutional controls to limit exposure to the contamination remaining on the site.

(i) An alternate reasonable maximum exposure scenario shall reflect the highest exposure that is reasonably expected to occur under current and potential future site conditions considering, among other appropriate factors, the potential for institutional controls to fail and the extent of the time period of failure under these scenarios and the land uses at the site.

(ii) Land uses other than residential and industrial, such as agricultural, recreational, and commercial, shall not be used as the basis for a reasonable maximum exposure scenario for the purpose of establishing a cleanup level. However, these land uses may be used as a basis for an alternate reasonable maximum exposure scenario for the purpose of assessing the protectiveness of a remedy. For example, if a cap (with appropriate institutional controls) is the proposed cleanup action at a commercial site, the reasonable maximum exposure scenario for assessing the protectiveness of the cap with regard to direct soil contact could be changed from a child living on the site to a construction or maintenance worker and child trespasser scenario.

(iii) The department expects that in evaluating the protectiveness of a remedy with regard to the soil direct contact pathway, many types of commercial sites may, where appropriate, qualify for alternative exposure scenarios under this provision since contaminated soil at these sites is typically characterized by a cover of buildings, pavement, and landscaped areas. Examples of these types of sites include:

(A) Commercial properties in a location removed from single family homes, duplexes or subdivided individual lots;

(B) Private and public recreational facilities where access to these facilities is physically controlled (e.g., a private golf course to which access is restricted by fencing);

(C) Urban residential sites (e.g., upper-story residential units over ground floor commercial businesses);

(D) Offices, restaurants, and other facilities primarily devoted to support administrative functions of a commercial/industrial nature (e.g., an employee credit union or cafeteria in a large office or industrial complex).

(e) A conceptual site model may be used to identify when individuals or groups of individuals may be exposed to hazardous substances through more than one exposure pathway. For example, a person may be exposed to hazardous substances from a site by drinking contaminated ground water, eating contaminated fish, and breathing contaminated air. At sites where the same individuals or groups of individuals are or could be consistently exposed through more than one pathway, the reasonable maximum exposure shall represent the total exposure through all of those pathways. At such sites, the cleanup levels and remediation levels derived for individual pathways under WAC 173-340-720 through 173-340-760 and WAC 173-340-350 through 173-340-390 shall be adjusted downward to take into account multiple exposure pathways.

(4) **Cleanup levels for individual hazardous substances.** Cleanup levels for individual hazardous substances will generally be based on a combination of requirements in applicable state and federal laws and risk assessment.

(5) **Multiple hazardous substances.**

(a) Cleanup levels for individual hazardous substances established under Methods B and C and remediation levels shall be adjusted downward to take into account exposure to multiple hazardous substances. This adjustment needs to be made only if, without this adjustment, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}).

(b) Adverse effects resulting from exposure to two or more hazardous substances with similar types of toxic response are assumed to be additive unless scientific evidence is available to demonstrate otherwise. Cancer risks resulting from exposure to two or more carcinogens are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(c) For noncarcinogens, for purposes of establishing cleanup levels under Methods B and C, and for remediation levels, the health threats resulting from exposure to two or more hazardous substances with similar types of toxic response may be apportioned between those hazardous substances in any combination as long as the hazard index does not exceed one (1).

(d) For carcinogens, for purposes of establishing cleanup levels under Methods B and C, and for remediation levels, the cancer risks resulting from exposure to multiple hazardous substances may be apportioned between hazardous substances in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}).

(e) The department may require biological testing to assess the potential interactive effects associated with chemical mixtures.

(f) When making adjustments to cleanup levels and remediation levels for multiple hazardous substances, the concentration for individual hazardous substances shall not be adjusted downward to less than the practical quantitation limit or natural background.

(6) **Multiple pathways of exposure.**

(a) Estimated doses of individual hazardous substances resulting from more than one pathway of exposure are assumed to be additive unless scientific evidence is available to demonstrate otherwise.

(b) Cleanup levels and remediation levels based on one pathway of exposure shall be adjusted downward to take into account exposures from more than one exposure pathway. The number of exposure pathways considered at a given site shall be based on the reasonable maximum exposure scenario as defined in WAC 173-340-708(3). This adjustment needs to

be made only if exposure through multiple pathways is likely to occur at a site and, without the adjustment, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}).

(c) For noncarcinogens, for purposes of establishing cleanup levels under Methods B and C, and remediation levels, the health threats associated with exposure via multiple pathways may be apportioned between exposure pathways in any combination as long as the hazard index does not exceed one (1).

(d) For carcinogens, for purposes of establishing cleanup levels under Methods B and C, and for remediation levels, the cancer risks associated with exposure via multiple pathways may be apportioned between exposure pathways in any combination as long as the total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}).

(e) When making adjustments to cleanup levels and remediation levels for multiple pathways of exposure, the concentration for individual hazardous substances shall not be adjusted downward to less than the practical quantitation limit or natural background.

(7) **Reference doses.**

(a) The chronic reference dose/reference concentration and the developmental reference dose/reference concentration shall be used to establish cleanup levels and remediation levels under this chapter. Cleanup levels and remediation levels shall be established using the value which results in the most protective concentration.

(b) Inhalation reference doses/reference concentrations shall be used in WAC 173-340-750. Where the inhalation reference dose/reference concentration is reported as a concentration in air, that value shall be converted to a corresponding inhaled intake (mg/kg-day) using a human body weight of 70 kg and an inhalation rate of 20 m^3/day, and take into account, where available, the respiratory deposition and absorption characteristics of the gases and inhaled particles.

(c) A subchronic reference dose/reference concentration may be used to evaluate potential noncarcinogenic effects resulting from exposure to hazardous substances over short periods of time. This value may be used in place of the chronic reference dose/reference concentration where it can be demonstrated that a particular hazardous substance will degrade to negligible concentrations during the exposure period.

(d) For purposes of establishing cleanup levels and remediation levels for hazardous substances under this chapter, a reference dose/reference concentration established by the United States Environmental Protection Agency and available through the "integrated risk information system" (IRIS) data base shall be used. If a reference dose/reference concentration is not available through the IRIS data base, a reference dose/reference concentration from the U.S. EPA Health Effects Assessment Summary Table ("HEAST") database or, if more appropriate, the National Center for Environmental Assessment ("NCEA") shall be used.

(e) If a reference dose/reference concentration is available through IRIS, HEAST, or the NCEA, it shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of this value is inappropriate.

(f) If a reference dose/reference concentration for a hazardous substance including petroleum fractions and petroleum constituents is not available through IRIS, HEAST or the NCEA or is demonstrated to be inappropriate under (e) of this subsection and the department determines that development of a reference dose/reference concentration is necessary for the hazardous substance at the site, then a reference dose/reference concentration shall be established on a case-by-case basis. When establishing a reference dose on a case-by-case basis, the methods described in "Reference Dose (RfD): Description and Use in Health Risk Assessment: Background Document 1A", USEPA, March 15, 1993, shall be used.

(g) In estimating a reference dose/reference concentration for a hazardous substance under (e) or (f) of this subsection, the department shall, as appropriate, consult with the science advisory board, the department of health, and the United States Environmental Protection Agency and may, as appropriate, consult with other qualified persons. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702 (14), (15) and (16). Once the department has established a reference dose/reference concentration for a hazardous substance under this provision, the department is not required to consult again for the same hazardous substance.

(h) Where a reference dose/reference concentration other than those established under (d) or (g) of this subsection is used to establish a cleanup level or remediation level at individual sites, the department shall summarize the scientific rationale for the use of those values in the cleanup action plan. The department shall provide the opportunity for public review and comment on this value in accordance with the requirements of WAC 173-340-380 and 173-340-600.

(8) **Carcinogenic potency factor.**

(a) For purposes of establishing cleanup levels and remediation levels for hazardous substances under this chapter, a carcinogenic potency factor established by the United States Environmental Protection Agency and available through the IRIS data base shall be used. If a carcinogenic potency factor is not available from the IRIS data base, a carcinogenic potency factor from HEAST or, if more appropriate, from the NCEA shall be used.

(b) If a carcinogenic potency factor is available from the IRIS, HEAST or the NCEA, it shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of this value is inappropriate.

(c) If a carcinogenic potency factor is not available through IRIS, HEAST or the NCEA or is demonstrated to be inappropriate under (b) of this subsection and the department determines that development of a cancer potency factor is necessary for the hazardous substance at the site, then one of the following methods shall be used to establish a carcinogenic potency factor:

(i) The carcinogenic potency factor may be derived from appropriate human epidemiology data on a case-by-case basis; or

(ii) The carcinogenic potency factor may be derived from animal bioassay data using the following procedures:

(A) All carcinogenicity bioassays shall be reviewed and data of appropriate quality shall be used for establishing the carcinogenic potency factor.

(B) The linearized multistage extrapolation model shall be used to estimate the slope of the dose-response curve unless the department determines that there is clear and convincing scientific data which demonstrates that the use of an alternate extrapolation model is more appropriate;

(C) All doses shall be adjusted to give an average daily dose over the study duration; and

(D) An interspecies scaling factor shall be used to take into account differences between animals and humans. For oral carcinogenic toxicity values this scaling factor shall be based on the assumption that milligrams per surface area is an equivalent dose between species unless the department determines there is clear and convincing scientific data which demonstrates that an alternate procedure is more appropriate. The slope of the dose response curve for the test species shall be multiplied by this scaling factor in order to obtain the carcinogenic potency factor, except where such scaling factors are incorporated into the extrapolation model under (B) of this subsection. The procedure to derive a human equivalent concentration of inhaled particles and gases shall take into account, where available, the respiratory deposition and absorption characteristics of the gases and inhaled particles. Where adequate pharmacokinetic and metabolism studies are available, data from these studies may be used to adjust the interspecies scaling factor.

(d) When assessing the potential carcinogenic risk of mixtures of chlorinated dibenzo-p-dioxins (CDD) and chlorinated dibenzofurans (CDF) either of the following methods shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of these methods is inappropriate:

(i) The entire mixture is assumed to be as toxic as 2, 3, 7, 8 CDD or 2, 3, 7, 8 CDF, as applicable; or

(ii) The toxicity equivalency factors and methodology described in: EPA. 1989. *"Interim procedures for estimating risks associated with exposure to mixtures of chlorinated dibenzo-p-dioxins and dibenzofurans (CDDs and CDFs) and 1989 update"*, USEPA, Risk Assessment Forum, Washington, D.C., publication number EPA/625/3-89/016.

(e) When assessing the potential carcinogenic risk of mixtures of polycyclic aromatic hydrocarbons, either of the following methods shall be used unless the department determines that there is clear and convincing scientific data which demonstrates that the use of these methods is inappropriate:

(i) The entire mixture is assumed to be as toxic as benzo(a)pyrene; or

(ii) The toxicity equivalency factors and methodology described in *"CalEPA. 1994. Benzo(a)pyrene as a toxic air contaminant. Part B: Health Assessment."* Published by the Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, Berkeley, CA. When using this methodology, at a minimum, the following compounds shall be analyzed for and included in the calculations: Benzo[a]pyrene, Benz[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Chrysene, Dibenz[a,h]anthracene, Indeno[1,2,3cd]pyrene. The department may require additional compounds from the CalEPA list to be included in the methodology should site testing data or information from other comparable sites or waste types indicate the additional compounds are potentially present at the site. *NOTE: Many of the polycyclic aromatic hydrocarbons on the CalEPA list are found primarily in air emissions from combustion sources and may not be present in the soil or water at contaminated sites. Users should consult with the department for information on the need to test for these additional compounds.*

(f) In estimating a carcinogenic potency factor for a hazardous substance under (c) of this subsection, the department shall, as appropriate, consult with the science advisory board, the department of health, and the United States Environmental Protection Agency and may, as appropriate, consult with other qualified persons. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702 (14), (15) and (16). Once the department has established a carcinogenic potency factor for a hazardous substance under this provision, the department is not required to consult again for the same hazardous substance.

(g) Where a carcinogenic potency factor other than that established under (a), (d) and (e) of this subsection is used to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of that value in the cleanup action plan. The department shall provide the opportunity for public review and comment on this value in accordance with the requirements of WAC 173-340-380 and 173-340-600.

(9) **Bioconcentration factors.**

(a) For purposes of establishing cleanup levels and remediation levels for a hazardous substance under WAC 173-340-730, a bioconcentration factor established by the United States Environmental Protection Agency and used to establish the ambient water quality criterion for that substance under section 304 of the Clean Water Act shall be used. These values shall be used unless the department determines that there is adequate scientific data which demonstrates that the use of an alternate value is more appropriate. If the department determines that a bioconcentration factor is appropriate for a specific hazardous substance and no such factor has been established by USEPA, then other appropriate EPA documents, literature sources or empirical information may be used to determine a bioconcentration factor.

(b) When using a bioconcentration factor other than that used to establish the ambient water quality criterion, the department shall, as appropriate, consult with the science advisory board, the department of health, and the United States Environmental Protection Agency. Scientific data supporting such a value shall be subject to the requirements under WAC 173-340-702 (14), (15) and (16). Once the department has established a bioconcentration factor for a hazardous substance under this provision, the department is not required to consult again for the same hazardous substance.

(c) Where a bioconcentration factor other than that established under (a) of this subsection is used to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of that factor in the draft cleanup action plan. The department shall provide the opportunity for public review and comment

on the value in accordance with the requirements of WAC 173-340-380 and 173-340-600.

(10) **Exposure parameters.**

(a) As a matter of policy, the department has defined in WAC 173-340-720 through 173-340-760 the default values for exposure parameters to be used when establishing cleanup levels and remediation levels under this chapter. Except as provided for in (b) and (c) of this subsection and in WAC 173-340-720 through 173-340-760, these default values shall not be changed for individual hazardous substances or sites.

(b) Exposure parameters that are primarily a function of the exposed population characteristics (such as body weight and lifetime) and those that are primarily a function of human behavior that cannot be controlled through an engineered or institutional control (such as: Fish consumption rate; soil ingestion rate; drinking water ingestion rate; and breathing rate) are not expected to vary on a site-by-site basis. The default values for these exposure parameters shall not be changed when calculating cleanup levels except when necessary to establish a more stringent cleanup level to protect human health. For remediation levels the default values for these exposure parameters may only be changed when an alternate reasonable maximum exposure scenario is used, as provided for in WAC 173-340-708 (3)(d), that reflects a different exposed population such as using an adult instead of a child exposure scenario. Other exposure parameters may be changed only as follows:

(i) For calculation of cleanup levels, the types of exposure parameters that may be changed are those that are:

(A) Primarily a function of reliably measurable characteristics of the hazardous substance, soil, hydrologic or hydrogeologic conditions at the site; and

(B) Not dependent on the success of engineered controls or institutional controls for controlling exposure of persons to the hazardous substances at the site.

The default values for these exposure parameters may be changed where there is adequate scientific data to demonstrate that use of an alternative or additional value would be more appropriate for the conditions present at the site. Examples of exposure parameters for which the default values may be changed under this provision are as follows: Contaminant leaching and transport variables (such as the soil organic carbon content, aquifer permeability and soil sorption coefficient); inhalation correction factor; fish bioconcentration factor; soil gastrointestinal absorption fraction; and inhalation absorption percentage.

(ii) For calculation of remediation levels, in addition to the exposure parameters that may be changed under (b)(i) of this subsection, the types of exposure parameters that may be changed from the default values are those where a demonstration can be made that the proposed cleanup action uses engineered controls and/or institutional controls that can be successfully relied on, for the reasonably foreseeable future, to control contaminant mobility and/or exposure to the contamination remaining on the site. In general, exposure parameters that may be changed under this provision are those that define the exposure frequency, exposure duration and exposure time. The default values for these exposure parameters may be changed where there is adequate scientific data to demonstrate that use of an alternative or additional value would be more appropriate for the conditions present at the site. Examples of exposure parameters for which the default value may be changed under this provision are as follows: Infiltration rate; frequency of soil contact; duration of soil exposure; duration of drinking water exposure; duration of air exposure; drinking water fraction; and fish diet fraction.

(c) When the modifications provided for in (b) of this subsection result in significantly higher values for cleanup levels or remediation levels than would be calculated using the default values for exposure parameters, the risk from other potentially relevant pathways of exposure shall be addressed under the procedures provided for in WAC 173-340-720 through 173-340-760. For exposure pathways and parameters for which default values are not specified in this chapter, the framework provided for by this subsection, along with the quality of information requirements in WAC 173-340-702, shall be used to establish appropriate or additional assumptions for these parameters and pathways.

(d) Where the department approves the use of exposure parameters other than those established under WAC 173-340-720 through 173-340-760 to establish cleanup levels or remediation levels at individual sites, the department shall summarize the scientific rationale for the use of those parameters in the cleanup action plan. The department shall provide the opportunity for public review and comment on those values in accordance with the requirements of WAC 173-340-380 and 173-340-600. Scientific data supporting such a change shall be subject to the requirements under WAC 173-340-702 (14), (15) and (16).

(11) **Probabilistic risk assessment.** Probabilistic risk assessment methods may be used under this chapter only on an informational basis for evaluating alternative remedies. Such methods shall not be used to replace cleanup standards and remediation levels derived using deterministic methods under this chapter until the department has adopted rules describing adequate technical protocols and policies for the use of probabilistic risk assessment under this chapter.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-708, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-708, filed 1/28/91, effective 2/28/91.]

WAC 173-340-709 Methods for defining background concentrations. (1) **Purpose.** Sampling of hazardous substances in background areas may be conducted to distinguish site-related concentration from nonsite related concentrations of hazardous substances or to support the development of a Method C cleanup level under the provisions of WAC 173-340-706. For purposes of this chapter, two types of background may be determined, natural background and area background concentrations, as defined in WAC 173-340-200.

(2) **Background concentrations.** For purposes of defining background concentrations, samples shall be collected from areas that have the same basic characteristics as the medium of concern at the site, have not been influenced by releases from the site and, in the case of natural background concentrations, have not been influenced by releases from other localized human activities.

(3) **Statistical analysis.**

(a) The statistical methods used to evaluate data sets shall be appropriate for the distribution of each hazardous substance. More than one statistical method may be required at a site.

(b) Background sampling data shall be assumed to be lognormally distributed unless it can be demonstrated that another distribution is more appropriate.

(c) For lognormally distributed data sets, background shall be defined as the true upper 90th percentile or four times the true 50th percentile, whichever is lower.

(d) For normally distributed data sets, background shall be defined as the true upper 80th percentile or four times the true 50th percentile, whichever is lower.

(e) Other statistical methods may be used if approved by the department.

(4) **Sample size.** When determining natural background concentrations for soil, a sample size of ten or more background soil samples shall be required. When determining area background concentrations for soil, a sample size of twenty or more soil samples shall be required. The number of samples for other media shall be sufficient to provide a representative measure of background concentrations and shall be determined on a case-by-case basis.

(5) **Procedures.** For the purposes of estimating background concentrations, the following procedures shall be used for measurements below the practical quantitation limit:

(a) Measurements below the method detection limit shall be assigned a value equal to one-half of the method detection limit.

(b) Measurements above the method detection limit, but below the practical quantitation limit shall be assigned a value equal to the method detection limit.

(c) The department may approve the use of alternate statistical procedures for handling data below the method detection limit or practical quantitation limit.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-709, filed 2/12/01, effective 8/15/01.]

WAC 173-340-710 Applicable local, state and federal laws. (1) **Applicable state and federal laws.**

All cleanup actions conducted under this chapter shall comply with applicable state and federal laws. For purposes of this chapter, the term "applicable state and federal laws" shall include legally applicable requirements and those requirements that the department determines, based on consideration of the criteria in subsection (4) of this section, are relevant and appropriate requirements.

(2) **Department determination.** The person conducting a cleanup action shall identify all applicable state and federal laws. The department shall make the final interpretation on whether these requirements have been correctly identified and are legally applicable or relevant and appropriate.

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

(4) **Relevant and appropriate requirements.** Relevant and appropriate requirements include those cleanup standards, standards of control, and other environmental requirements, criteria, or limitations established under state or federal law that, while not legally applicable to the hazardous substance, cleanup action, location, or other circumstance at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to the particular site. WAC 173-340-710 through 173-340-760 identifies several requirements the department shall consider relevant and appropriate for establishing cleanup standards. For other regulatory requirements, the following criteria shall be evaluated, where pertinent, to determine whether such requirements are relevant and appropriate for a particular hazardous substance, remedial action, or site:

(a) Whether the purpose for which the statute or regulations under which the requirement was created is similar to the purpose of the cleanup action;

(b) Whether the media regulated or affected by the requirement is similar to the media contaminated or affected at the site;

(c) Whether the hazardous substance regulated by the requirement is similar to the hazardous substance found at the site;

(d) Whether the entities or interests affected or protected by the requirement are similar to the entities or interests affected by the site;

(e) Whether the actions or activities regulated by the requirement are similar to the cleanup action contemplated at the site;

(f) Whether any variance, waiver, or exemption to the requirements are available for the circumstances of the site;

(g) Whether the type of place regulated is similar to the site;

(h) Whether the type and size of structure or site regulated is similar to the type and size of structure or site affected by the release or contemplated by the cleanup action; and

(i) Whether any consideration of use or potential use of affected resources in the requirement is similar to the use or potential use of the resources affected by the site or contemplated cleanup action.

(5) **Variances.** For purposes of this chapter, a regulatory variance or waiver provision included in an applicable state and federal law shall be considered potentially applicable to interim actions and cleanup actions and the department may determine that a particular regulatory variance or waiver is appropriate if the substantive conditions for such a regulatory variance or waiver are met. In all such cases, interim actions and cleanup actions shall be protective of human health and the environment.

(6) **New requirements.** The department shall consider new applicable state and federal laws as part of the periodic review under WAC 173-340-420. Cleanup actions shall be evaluated in light of these new requirements to determine whether the cleanup action is still protective of human health and the environment.

(7) **Selection of cleanup actions.** To demonstrate compliance with WAC 173-340-350 through 173-340-390, cleanup actions shall comply with all applicable state and federal laws in addition to the other requirements of this

chapter. The following, which is not a complete list, are selected applications of specific applicable state and federal laws to cleanup actions.

(a) **Water discharge requirements.** Hazardous substances that are directly or indirectly released or proposed to be released to waters of the state shall be provided with all known, available and reasonable methods of treatment consistent with the requirements of chapters 90.48 and 90.54 RCW and the regulations that implement those statutes.

(b) **Air emission requirements.** Best available control technologies consistent with the requirements of chapter 70.94 RCW and the regulations that implement this statute shall be applied to releases of hazardous substances to the air resulting from cleanup actions at a site.

(c) **Solid waste landfill closure requirements.** For solid waste landfills, the solid waste closure requirements in chapter 173-304 WAC shall be minimum requirements for cleanup actions conducted under this chapter. In addition, when the department determines that the closure requirements in chapters 173-351 or 173-303 WAC are legally applicable or relevant and appropriate requirements, the more stringent closure requirements under those laws shall also apply to cleanup actions conducted under this chapter.

(d) **Sediment management requirements.** Sediment cleanup actions conducted under this chapter shall comply with the sediment cleanup standards in chapter 173-204 WAC. In addition, a remedial investigation/feasibility study conducted under WAC 173-340-350 shall also comply with the cleanup study plan requirements under chapter 173-204 WAC. The process for selecting sediment cleanup actions under this chapter shall comply with the requirements in WAC 173-340-350 through 173-340-390.

(8) **Interim actions.** Interim actions conducted under this chapter shall comply with legally applicable requirements. The department may also determine, based on the criteria in subsection (3) of this section, that other requirements, criteria, or limitations are relevant and appropriate for interim actions.

(9) **Permits and exemptions.**

(a) Independent remedial actions must obtain permits required by other federal, state and local laws.

(b) Under RCW 70.105D.090, remedial actions conducted under a consent decree, order, or agreed order, and the department when it conducts a remedial action are exempt from the procedural requirements of certain laws. This exemption shall not apply if the department determines that the exemption would result in loss of approval from a federal agency necessary for the state to administer any federal law. This exemption applies to the following laws:

(i) Chapter 70.94 RCW;

(ii) Chapter 70.95 RCW;

(iii) Chapter 70.105 RCW;

(iv) Chapter 75.20 RCW;

(v) Chapter 90.48 RCW;

(vi) Chapter 90.58 RCW; and

(vii) Any laws requiring or authorizing local government permits or approvals for the remedial action.

(c) Remedial actions exempt from procedural requirements under (a) and (b) of this subsection still must comply with the substantive requirements of these laws.

(d) The department shall ensure compliance with substantive requirements and provide an opportunity for comment by the public and by the state agencies and local governments that would otherwise implement these laws as follows:

(i) Before proposing any substantive requirements, the department or potentially liable persons, if directed to do so by the department, shall consult with the state agencies and local governments to identify potential permits and to obtain written documentation from the consulted agencies regarding the substantive requirements for permits exempted under RCW 70.105D.090.

(ii) The permit exemptions and the substantive requirements, to the extent they are known, shall be identified by the department in the order, decree, or if the cleanup is being conducted by the department, in the work plan prepared by the department.

(iii) A public notice of the order, decree or work plan shall be issued in accordance with WAC 173-340-600. The notice shall specifically identify the permits exempted under RCW 70.105D.090 and seek comment on the substantive requirements proposed to be applied to the remedial action. This notice shall be mailed to the state agencies and local governments that would otherwise implement these permits. This notice shall also be mailed to the same individuals that the state agencies and local government have identified that would normally be mailed notice to if a permit was being issued.

(iv) Substantive requirements, to the extent known and identified by the state agencies and local governments before issuing the order, decree or work plan and those identified by the state agencies and local government during the public comment period shall be incorporated into the order, decree or work plan if approved by the department.

(e) It shall be the continuing obligation of persons conducting remedial actions to determine whether additional permits or approvals or substantive requirements are required. In the event that either the person conducting the remedial action or the department becomes aware of additional permits or approvals or substantive requirements that apply to the remedial action, they shall promptly notify the other party of this knowledge. The department, or the potentially liable person at the department's request, shall consult with the state or local agency on these additional requirements. The department shall make the final determination on the application of any additional substantive requirements at the site.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-710, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-710, filed 1/28/91, effective 2/28/91.]

WAC 173-340-720 Ground water cleanup standards.

(1) **General considerations.**

(a) Ground water cleanup levels shall be based on estimates of the highest beneficial use and the reasonable maximum exposure expected to occur under both current and potential future site use conditions. The department has determined that at most sites use of ground water as a source of

drinking water is the beneficial use requiring the highest quality of ground water and that exposure to hazardous substances through ingestion of drinking water and other domestic uses represents the reasonable maximum exposure. Unless a site qualifies under subsection (2) of this section for a different ground water beneficial use, ground water cleanup levels shall be established using this presumed exposure scenario and be established in accordance with subsection (3), (4) or (5) of this section. If the site qualifies for a different ground water beneficial use, ground water cleanup levels shall be established under subsection (6) of this section.

(b) In the event of a release of a hazardous substance at a site, a cleanup action complying with this chapter shall be conducted to address all areas where the concentration of the hazardous substance in ground water exceeds cleanup levels.

(c) Ground water cleanup levels shall be established at concentrations that do not directly or indirectly cause violations of surface water, sediments, soil, or air cleanup standards established under this chapter or other applicable state and federal laws. A site that qualifies for a Method C ground water cleanup level under this section does not necessarily qualify for a Method C cleanup level in other media. Each medium must be evaluated separately using the criteria applicable to that medium.

(d) The department may require more stringent cleanup levels than specified in this section where necessary to protect other beneficial uses or otherwise protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708. The following are examples of situations that may require more stringent cleanup levels:

(i) Concentrations that are necessary to protect sensitive subgroups;

(ii) Concentrations that eliminate or minimize the potential for food chain contamination;

(iii) Concentrations that eliminate or minimize the potential for damage to soils or biota in the soils which could impair the use of the soil for agricultural or silvicultural purposes;

(iv) Concentrations that eliminate or minimize the potential for the accumulation of vapors in buildings or other structures to concentrations which pose a threat to human health or the environment; and

(v) Concentrations that protect nearby surface waters.

(2) **Potable ground water defined.** Ground water shall be classified as potable to protect drinking water beneficial uses unless the following can be demonstrated:

(a) The ground water does not serve as a current source of drinking water;

(b) The ground water is not a potential future source of drinking water for any of the following reasons:

(i) The ground water is present in insufficient quantity to yield greater than 0.5 gallon per minute on a sustainable basis to a well constructed in compliance with chapter 173-160 WAC and in accordance with normal domestic water well construction practices for the area in which the site is located;

(ii) The ground water contains natural background concentrations of organic or inorganic constituents that make use of the water as a drinking water source not practicable. Ground water containing total dissolved solids at concentrations greater than 10,000 mg/l shall normally be considered to have fulfilled this requirement; *(NOTE: The total dissolved solids concentration provided here is an example. There may be other situations where high natural background levels also meet this requirement.)* or

(iii) The ground water is situated at a great depth or location that makes recovery of water for drinking water purposes technically impossible; and

(c) The department determines it is unlikely that hazardous substances will be transported from the contaminated ground water to ground water that is a current or potential future source of drinking water, as defined in (a) and (b) of this subsection, at concentrations which exceed ground water quality criteria published in chapter 173-200 WAC.

In making a determination under this provision, the department shall consider site-specific factors including:

(i) The extent of affected ground water;

(ii) The distance to existing water supply wells;

(iii) The likelihood of interconnection between the contaminated ground water and ground water that is a current or potential future source of drinking water due to well construction practices in the area of the state where the site is located;

(iv) The physical and chemical characteristics of the hazardous substance;

(v) The hydrogeologic characteristics of the site;

(vi) The presence of discontinuities in the affected geologic stratum; and

(vii) The degree of confidence in any predictive modeling performed.

(d) Even if ground water is classified as a potential future source of drinking water under (b) of this subsection, the department recognizes that there may be sites where there is an extremely low probability that the ground water will be used for that purpose because of the site's proximity to surface water that is not suitable as a domestic water supply. An example of this situation would be shallow ground waters in close proximity to marine waters such as on Harbor Island in Seattle. At such sites, the department may allow ground water to be classified as nonpotable for the purposes of this section if each of the following conditions can be demonstrated. These determinations must be for reasons other than that the ground water or surface water has been contaminated by a release of a hazardous substance at the site.

(i) The conditions specified in (a) and (c) of this subsection are met;

(ii) There are known or projected points of entry of the ground water into the surface water;

(iii) The surface water is not classified as a suitable domestic water supply source under chapter 173-201A WAC; and

(iv) The ground water is sufficiently hydraulically connected to the surface water that the ground water is not practicable to use as a drinking water source.

(3) **Method A cleanup levels for potable ground water.**

(a) **Applicability.** Method A ground water cleanup levels may only be used at sites qualifying under WAC 173-340-704(1).

(b) **General requirements.** Method A cleanup levels shall be at least as stringent as all of the following:

(i) Concentrations listed in Table 720-1 and compliance with the corresponding footnotes;

(ii) Concentrations established under applicable state and federal laws, including the following requirements:

(A) Maximum contaminant levels established under the Safe Drinking Water Act and published in 40 C.F.R. 141;

(B) Maximum contaminant level goals for noncarcinogens established under the Safe Drinking Water Act and published in 40 C.F.R. 141;

(C) Maximum contaminant levels established by the state board of health and published in chapter 246-290 WAC.

(iii) For hazardous substances deemed indicator hazardous substances for ground water under WAC 173-340-708(2) and for which there is no value in Table 720-1 or applicable state and federal laws, concentrations that do not exceed natural background or the practical quantitation limit, subject to the limitations in this chapter.

(iv) **Protection of surface water beneficial uses.** Concentrations established in accordance with the methods specified in WAC 173-340-730 for protecting surface water beneficial uses, unless it can be demonstrated that the hazardous substances are not likely to reach surface water. This demonstration must be based on factors other than implementation of a cleanup action at the site.

(4) **Method B cleanup levels for potable ground water.**

(a) **Applicability.** Method B potable ground water cleanup levels consist of standard and modified cleanup levels determined using the procedures in this subsection. Either standard or modified Method B ground water cleanup levels based on drinking water beneficial uses may be used at any site.

(b) **Standard Method B potable ground water cleanup levels.** Where the ground water cleanup level is based on a drinking water beneficial use, standard Method B cleanup levels shall be at least as stringent as all of the following:

(i) **Applicable state and federal laws.** Concentrations established under applicable state and federal laws, including the requirements in subsection (3)(b)(ii) of this section;

(ii) **Protection of surface water beneficial uses.** Concentrations established in accordance with the methods specified in WAC 173-340-730 for protecting surface water beneficial uses, unless it can be demonstrated that the hazardous substances are not likely to reach surface water. This demonstration must be based on factors other than implementation of a cleanup action at the site.

(iii) **Human health protection.** For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations which protect human health as determined by the following methods:

(A) **Noncarcinogens.** Concentrations that are estimated to result in no acute or chronic toxic effects on human health as determined using Equation 720-1.

[Equation 720-1]

$$\text{Ground water cleanup level (ug/l)} = \frac{\text{RfD x ABW x UCF x HQ x AT}}{\text{DWIR x INH x DWF x ED}}$$

Where:

RfD = Reference dose as specified in WAC 173-340-708(7) (mg/kg-day)
ABW = Average body weight during the exposure duration (16 kg)
UCF = Unit conversion factor (1,000 ug/mg)
HQ = Hazard quotient (1) (unitless)
AT = Averaging time (6 years)
DWIR = Drinking water ingestion rate (1.0 liter/day)
INH = Inhalation correction factor (use value of 2 for volatile organic compounds and 1 for all other substances [unitless])
DWF = Drinking water fraction (1.0) (unitless)
ED = Exposure duration (1.0) (6 years)

(B) **Carcinogens.** For known or suspected carcinogens, concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one million (1×10^{-6}) as determined using Equation 720-2.

[Equation 720-2]

$$\text{Ground water cleanup level (ug/l)} = \frac{\text{RISK x ABW x AT x UCF}}{\text{CPF x DWIR x ED x INH x DWF}}$$

Where:

RISK = Acceptable cancer risk level (1 in 1,000,000) (unitless)
ABW = Average body weight during the exposure duration (70 kg)
AT = Averaging time (75 years)
UCF = Unit conversion factor (1,000 ug/mg)
CPF = Carcinogenic potency factor as specified in WAC 173-340-708(8) (kg-day/mg)
DWIR = Drinking water ingestion rate (2.0 liters/day)
ED = Exposure duration (30 years)
INH = Inhalation correction factor (use value of 2 for volatile organic compounds and 1 for all other substances [unitless])
DWF = Drinking water fraction (1.0) (unitless)

(C) **Petroleum mixtures.** For noncarcinogenic effects of petroleum mixtures, a total petroleum hydrocarbon cleanup level shall be calculated taking into account the additive effects of the petroleum fractions and volatile organic compounds present in the petroleum mixture. Equation 720-3 shall be used for this calculation. Cleanup levels for other noncarcinogens and known or suspected carcinogens within the petroleum mixture shall be calculated using Equations 720-1 and 720-2. See Table 830-1 for the analyses required for various petroleum products to use this method. A total petroleum hydrocarbon cleanup level for petroleum mixtures derived using Equation 720-3 shall be adjusted when necessary so that biological degradation of the petroleum does not result in exceedances of the maximum contaminant levels in chapter 246-290 WAC or natural background, whichever is higher.

[Equation 720-3]

$$C_w = \frac{HI \times AT}{\left[\frac{DWIR \times DWF \times ED}{ABW \times UCF}\right] \times \sum_{i=1}^{n} \frac{F(i) \times INH(i)}{RfD(i)}}$$

AT and ED added to above equation

Where:

C_w = TPH ground water cleanup level (ug/l)
HI = Hazard index (1) (unitless)
AT = Averaging time (6 years)
DWIR = Drinking water intake rate (1.0 liter/day)
DWF = Drinking water fraction (1.0) (unitless)
ED = Exposure duration (6 years)
ABW = Average body weight during the exposure duration (16 kg)
UCF = Unit conversion factor (1,000 ug/mg)
$F_{(i)}$ = Fraction by weight of petroleum component (i). (Unitless) (Use site-specific ground water composition data, provided the data is representative of present and future conditions at the site, or use the ground water composition predicted under WAC 173-340-747
$INH_{(i)}$ = Inhalation correction fraction for petroleum component (i) (use value of 2 for volatile organic compounds and 1 for all other components [unitless])
$RfD_{(i)}$ = Reference dose of petroleum component (i) as specified in WAC 173-340-708(7) (mg/kg-day)
n = The number of petroleum components (petroleum fractions plus volatile organic compounds with an RfD) present in the petroleum mixture. (See Table 830-1.)

(c) **Modified Method B potable ground water cleanup levels.** Modified Method B ground water cleanup levels for drinking water beneficial uses are standard Method B ground water cleanup levels modified with chemical-specific or site-specific data. When making these adjustments, the resultant cleanup levels shall meet applicable state and federal laws and health risk levels for standard Method B ground water cleanup levels. Changes to exposure assumptions must comply with WAC 173-340-708(10). The following adjustments may be made to the default assumptions in the standard Method B equations to derive modified Method B ground water cleanup levels for drinking water beneficial uses:

(i) The inhalation correction factor is an adjustment factor that takes into account exposure to hazardous substances that are volatilized and inhaled during showering and other domestic activities. When available, hazardous substance-specific information may be used to estimate this factor;

(ii) Where separate toxicity factors (reference doses and carcinogenic potency factors) are available for inhalation and oral exposures, the health hazards associated with the inhalation of hazardous substances in ground water during showering and other domestic activities may be evaluated separately from the health hazards associated with ingestion of drinking water. In these cases, the ground water cleanup level based on ingestion of drinking water shall be modified to take into account multiple exposure pathways in accordance with WAC 173-340-708(6);

(iii) The toxicity equivalency factor procedures described in WAC 173-340-708(8) may be used for assessing the potential carcinogenic risk of mixtures of chlorinated dibenzo-p-dioxins, chlorinated dibenzofurans and polycyclic aromatic hydrocarbons;

(iv) Adjustments to the reference dose and cancer potency factor may be made if the requirements in WAC 173-340-708 (7) and (8) are met; and

(v) Modifications incorporating new science as provided for in WAC 173-340-702 (14), (15) and (16).

(d) **Using modified Method B to evaluate ground water remediation levels.** In addition to the adjustments allowed under (c) of this subsection, other adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357, and 173-340-708 (3)(d) and (10)(b).

(5) **Method C cleanup levels for potable ground water.**

(a) **Applicability.** Method C potable ground water cleanup levels consist of standard and modified cleanup levels as described in this subsection.

The department may approve of both standard and modified Method C ground water cleanup levels based on drinking water beneficial uses only at sites qualifying under WAC 173-340-706(1).

(b) **Standard Method C potable ground water cleanup levels.** Where the ground water cleanup level is based on a drinking water beneficial use and the site qualifies for a Method C ground water cleanup level, the standard Method C cleanup levels for ground water shall be at least as stringent as all of the following:

(i) **Applicable state and federal laws.** Concentrations established under applicable state and federal laws, including the requirements in subsection (3)(b)(ii) of this section;

(ii) **Protection of surface water beneficial uses.** Concentrations established in accordance with the methods specified in WAC 173-340-730 for protecting surface water beneficial uses, unless it can be demonstrated that the hazardous substances are not likely to reach surface water. This demonstration must be based on factors other than implementation of a cleanup action at the site.

(iii) **Human health protection.** For hazardous substances for which sufficiently protective, health-based standards or criteria have not been established under applicable state and federal laws, those concentrations that protect human health as determined using the following methods:

(A) **Noncarcinogens.** Concentrations that are estimated to result in no significant acute or chronic toxic effects on human health and are estimated using Equation 720-1, except that the average body weight shall be 70 kg and the drinking water intake rate shall be 2 liters/day;

(B) **Carcinogens.** Concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one hundred thousand (1×10^{-5}), using Equation 720-2;

(C) **Petroleum mixtures.** Cleanup levels for petroleum mixtures shall be determined as specified in subsection (4)(b)(iii)(C) of this section except that the average body weight shall be 70 kg and the drinking water rate shall be 2 liters/day.

(c) **Modified Method C potable ground water cleanup levels.** Modified Method C ground water cleanup levels for drinking water beneficial uses are standard Method C ground water cleanup levels modified with chemical-specific or site-specific data. The same limitations and adjustments specified for modified Method B in subsection (4)(c) of this section apply to modified Method C ground water cleanup levels.

(d) **Using Modified Method C to evaluate ground water remediation levels.** In addition to the adjustments allowed under (c) of this subsection, other adjustments to the reasonable maximum exposure scenario or default exposure

assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357, and 173-340-708 (3)(d) and (10)(b).

(6) **Cleanup levels for nonpotable ground water.**

(a) **Applicability.** Ground water cleanup levels may be established under this subsection only if the contaminated ground water is not classified as potable under subsection (2) of this section.

(b) **Requirements.** Cleanup levels shall be established in accordance with either of the following:

(i) The methods specified in subsections (3), (4) or (5) of this section, as applicable, for protection of drinking water beneficial uses; or

(ii) A site-specific risk assessment as provided for under (c) of this subsection for protection of other ground water beneficial uses.

(c) **Site-specific risk assessment.**

(i) **Method B site-specific ground water cleanup levels.** Where a site-specific risk assessment is used to establish a Method B ground water cleanup level under (b)(ii) of this subsection, the risk assessment shall conform to the requirements in WAC 173-340-702 and 173-340-708. The risk assessment shall evaluate all potential exposure pathways and ground water uses at the site, including potential impacts to persons engaged in site development or utility construction and maintenance activities. The risk assessment shall demonstrate the following:

(A) The cleanup levels will meet any applicable state and federal laws (drinking water standards are not applicable to these sites);

(B) The cleanup levels will result in no significant acute or chronic toxic effects on human health as demonstrated by not exceeding a hazard quotient of one (1) for individual hazardous substances;

(C) The cleanup levels will result in an upper bound on the estimated excess cancer risk that is less than or equal to one in one million (1×10^{-6}) for individual hazardous substances;

(D) For organic hazardous substances and petroleum products, the cleanup levels comply with the limitation on free product in subsection (7)(d) of this section;

(E) The cleanup levels will not exceed the surface water cleanup levels derived under WAC 173-340-730 at the ground water point of compliance or exceed the surface water or sediment quality standards at any point downstream, unless it can be demonstrated that the hazardous substances are not likely to reach surface water. This demonstration must be based on factors other than implementation of a cleanup action at the site; and

(F) Where it is demonstrated that hazardous substances are not likely to reach surface water, the use of a ground water cleanup level less stringent than a surface water cleanup level will not pose a threat to surface water through pathways that could result in ground water affected by the site entering surface water (such as use of the water for irrigation or discharges from foundation drains or utility corridors).

(ii) **Method C site-specific ground water cleanup levels.**

(A) **Applicability.** The department may approve of a site-specific Method C ground water cleanup level derived under (b)(ii) of this subsection only at sites qualifying under WAC 173-340-706(1).

(B) **Requirements.** Where a site-specific risk assessment is used to establish a Method C ground water cleanup level under (b)(ii) of this subsection, the site-specific risk assessment shall comply with the requirements in (c)(i) of this subsection except that the level of risk for individual carcinogens shall be one in one hundred thousand (1×10^{-5}).

(iii) **Limitations on the use of site-specific risk assessment.** If the site-specific risk assessment results in a Method B or Method C ground water cleanup level that exceeds the applicable potable ground water cleanup level derived under (b)(i) of this subsection, then the potable ground water cleanup level shall be used unless the following conditions are met:

(A) All potentially affected property owners, local governments, tribes and water purveyors with jurisdiction in the area potentially affected by the ground water contamination have been mailed a notice of the proposal and provided an opportunity to comment. The notice shall specifically ask for information on existing and planned uses of the ground water. The notice shall be in addition to any notice provided under WAC 173-340-600. In determining whether it is appropriate to use a cleanup level less stringent than the potable ground water cleanup level, the department will give greater weight to information based on an adopted or pending plan or similar preexisting document.

(B) For sites where the ground water is classified as nonpotable under WAC 173-340-720 (2)(d), the cleanup action includes institutional controls complying with WAC 173-340-440 that will prevent the use of contaminated ground water for drinking water purposes at any point between the source of hazardous substances and the point(s) of entry of ground water into the surface water.

(C) For sites where the risk assessment includes assumptions of restricted use or contact with the ground water (other than for the reason of being nonpotable), or restricted use of the land above the ground water, the cleanup action includes institutional controls complying with WAC 173-340-440 that will implement the restrictions.

(7) **Adjustments to cleanup levels.**

(a) **Total site risk adjustments.** Ground water cleanup levels for individual hazardous substances developed in accordance with subsection (4), (5) or (6) of this section, including those based on applicable state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with the procedures in WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(b) **Adjustments to applicable state and federal laws.** Where a cleanup level developed under subsection (3), (4), (5), or (6) of this section is based on an applicable state or federal law and the level of risk upon which the standard is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level shall be adjusted downward so that the total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}) and the hazard index does not exceed one (1) at the site.

(c) **Natural background and PQL considerations.** Cleanup levels determined under subsection (3), (4), (5), or (6) of this section, including cleanup levels adjusted under subsection (7)(a) and (b) of this section, shall not be set at levels below the practical quantitation limit or natural background concentrations, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional requirements pertaining to practical quantitation limits and natural background.

(d) **Nonaqueous phase liquid limitation.** For organic hazardous substances and total petroleum hydrocarbons, the cleanup level determined under subsection (3), (4), (5), or (6) shall not exceed a concentration that would result in nonaqueous phase liquid being present in or on the ground water. Physical observations of ground water at or above the cleanup level, such as the lack of a film, sheen, or discoloration of the ground water or lack of sludge or emulsion in the ground water, may be used to determine compliance with this requirement.

(8) **Point of compliance.**

(a) **Point of compliance defined.** For ground water, the point of compliance is the point or points where the ground water cleanup levels established under subsection (3), (4), (5), or (6) of this section must be attained for a site to be in compliance with the cleanup standards. Ground water cleanup levels shall be attained in all ground waters from the point of compliance to the outer boundary of the hazardous substance plume.

(b) **Standard point of compliance for all sites.** The standard point of compliance shall be established throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the site.

(c) **Conditional point of compliance.** Where it can be demonstrated under WAC 173-340-350 through 173-340-390 that it is not practicable to meet the cleanup level throughout the site within a reasonable restoration time frame, the department may approve a conditional point of compliance that shall be as close as practicable to the source of hazardous substances, and except as provided under (d) of this subsection, not to exceed the property boundary. Where a conditional point of compliance is proposed, the person responsible for undertaking the cleanup action shall demonstrate that all practicable methods of treatment are to be used in the site cleanup.

(d) **Off-property conditional point of compliance.** A conditional point of compliance shall not exceed the property boundary except in the three situations described below. In each of these three situations the person responsible for undertaking the cleanup action shall demonstrate that, in addition to making the demonstration required by (c) of this subsection, the following requirements are met:

(i) **Properties abutting surface water.** Where the ground water cleanup level is based on protection of surface water beneficial uses under subsection (3), (4), (5), or (6) of this section, and the property containing the source of contamination directly abuts the surface water, the department may approve a conditional point of compliance that is located within the surface water as close as technically possible to the point or points where ground water flows into the surface water subject to the following conditions:

(A) It has been demonstrated that the contaminated ground water is entering the surface water and will continue to enter the surface water even after implementation of the selected cleanup action;

(B) It has been demonstrated under WAC 173-340-350 through 173-340-390 that it is not practicable to meet the cleanup level at a point within the ground water before entering the surface water, within a reasonable restoration time frame;

(C) Use of a mixing zone under WAC 173-201A-100 to demonstrate compliance with surface water cleanup levels shall not be allowed;

(D) Ground water discharges shall be provided with all known available and reasonable methods of treatment before being released into surface waters;

(E) Ground water discharges shall not result in violations of sediment quality values published in chapter 173-204 WAC;

(F) Ground water and surface water monitoring shall be conducted to assess the long-term performance of the selected cleanup action including potential bioaccumulation problems resulting from surface water concentrations below method detection limits; and

(G) Before approving the conditional point of compliance, a notice of the proposal shall be mailed to the natural resource trustees, the Washington state department of natural resources and the United States Army Corps of Engineers. The notice shall be in addition to any notice provided under WAC 173-340-600 and invite comments on the proposal.

(ii) **Properties near, but not abutting, surface water.** Where the ground water cleanup level is based on protection of surface water beneficial uses under subsection (3), (4), (5), or (6) of this section and the property that is the source of the contamination is located near, but does not directly abut, a surface water body, the department may approve a conditional point of compliance that is located as close as practicable to the source, not to exceed the point or points where the ground water flows into the surface water.

For a conditional point of compliance to be approved under this provision the conditions specified in (d)(i) of this section must be met and the affected property owners between the source of contamination and the surface water body must agree in writing to the use of the conditional point of compliance. Also, if the ground water cleanup level is not exceeded in the ground water prior to its entry into the surface water, the conditional point of compliance cannot extend beyond the extent of ground water contamination above the

cleanup level at the time the department approves the conditional point of compliance.

(iii) **Area-wide conditional point of compliance.** As part of remedy selection, the department may approve an area-wide conditional point of compliance to address an area-wide ground water contamination problem. The area-wide conditional point(s) of compliance shall be as close as practicable to each source of hazardous substances, not to exceed the extent of ground water contamination at the time the department approves an area-wide conditional point of compliance.

This provision may be applied only at areas that are affected by hazardous substances released from multiple sources that have resulted in commingled plumes of contaminated ground water that are not practicable to address separately. A site may have more than one area-wide conditional point of compliance to address multiple sources and types of contaminants. An area-wide conditional point of compliance may be approved under this provision only if all of the following conditions have been met:

(A) The person conducting the cleanup action has complied with WAC 173-340-350 through 173-340-390, including a demonstration that it is not practicable to meet a point of compliance throughout the ground water contamination within a reasonable restoration time frame;

(B) A plan has been developed for implementation of the cleanup action, including a description of how any necessary access to the affected properties will be obtained;

(C) If the contaminated ground water is considered to be potable under WAC 173-340-720(2), current developments in the area encompassed by the area-wide conditional point of compliance and any other areas potentially affected by the ground water contamination are served by a public water system that obtains its water from an offsite source and it can be demonstrated that the water system has sufficient capacity to serve future development in these areas. This demonstration may be made by obtaining a written statement to this effect from the water system operator;

(D) All property owners, tribes, local governments, and water purveyors with jurisdiction in the area potentially affected by the ground water contamination, have been mailed a notice of the proposal to establish an area-wide conditional point of compliance and provided an opportunity to comment. The notice shall specifically ask for information on existing and planned uses of the ground water. The notice shall be in addition to any notice provided under WAC 173-340-600. The department will give greater weight to information based on an adopted or pending plan or similar preexisting document. When the department is providing technical assistance under WAC 173-340-515, the department shall also provide an opportunity to comment to the public through the *Site Register* before issuing a written opinion.

(E) Other conditions as determined by the department on a case-by-case basis.

(e) **Monitoring wells and surface water compliance.**

(i) The department may require or approve the use of upland monitoring wells located between the surface water and the source of contamination to establish compliance where a conditional point of compliance has been established under subsection (8)(d)(i) or (ii) of this section.

(ii) Where such monitoring wells are used, the department should consider an estimate of natural attenuation between the monitoring well and the point or points where ground water flows into the surface water in evaluating whether compliance has been achieved.

(iii) When evaluating how much, if any, natural attenuation will occur, the department shall consider site-specific factors including:

(A) Whether the ground water could reach the surface water in ways that would not provide for natural attenuation within the ground water flow system (such as short circuiting through high permeability zones, utility corridors or foundation drains); and

(B) Whether changes to the ground water chemistry due to natural attenuation processes would cause an exceedance of surface water or sediment quality standards.

(9) **Compliance monitoring.**

(a) When ground water cleanup levels have been established at a site, sampling of the ground water shall be conducted to determine if compliance with the ground water cleanup levels has been achieved. Compliance with ground water cleanup levels shall be determined by analysis of ground water samples representative of the ground water. Surface water analysis, bioassays or other biomonitoring methods may also be required where the ground water cleanup level is based on protection of surface water. Sampling and analytical procedures shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. The sample design shall provide data that are representative of the site.

(b) Analyses shall be conducted on unfiltered ground water samples, unless it can be demonstrated that a filtered sample provides a more representative measure of ground water quality. The department expects that filtering will generally be acceptable for iron and manganese and other naturally occurring inorganic substances where:

(i) A properly constructed monitoring well cannot be sufficiently developed to provide low turbidity water samples;

(ii) Due to the natural background concentration of hazardous substances in the aquifer material, unfiltered samples would not provide a representative measure of ground water quality; and

(iii) Filtering is performed in the field with all practicable measures taken to avoid exposing the ground water sample to the ambient air before filtering.

(c) The data analysis and evaluation procedures used to evaluate compliance with ground water cleanup levels shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. These procedures shall meet the following general requirements:

(i) Methods of data analysis shall be consistent with the sampling design;

(ii) When cleanup levels are based on requirements specified in applicable state and federal laws, the procedures for evaluating compliance that are specified in those requirements shall be used to evaluate compliance with cleanup levels unless those procedures conflict with the intent of this section;

(iii) Where procedures for evaluating compliance are not specified in an applicable state and federal law, statistical methods used shall be appropriate for the distribution of sampling data for each hazardous substance. If the distributions for hazardous substances differ, more than one statistical method may be required;

(iv) Compliance with ground water cleanup levels shall be determined for each ground water monitoring well or other monitoring points such as a spring;

(v) The data analysis procedures identified in the compliance monitoring plan shall specify the statistical parameters to be used to determine compliance with ground water cleanup levels.

(A) For cleanup levels based on short-term or acute toxic effects on human health or the environment, an upper percentile concentration shall be used to evaluate compliance with ground water cleanup levels.

(B) For cleanup levels based on chronic or carcinogenic threats, the true mean concentration shall be used to evaluate compliance with ground water cleanup levels.

(vi) When active ground water restoration is performed, or containment technologies are used that incorporate active pumping of ground water, compliance with ground water cleanup levels shall be determined when the ground water characteristics at the site are no longer influenced by the cleanup action.

(d) When data analysis procedures for evaluating compliance are not specified in an applicable state or federal law, the following procedures shall be used:

(i) A confidence interval approach that meets the following requirements:

(A) The upper one-sided ninety-five percent confidence limit on the true mean ground water concentration shall be less than the ground water cleanup level. For lognormally distributed data, the upper one-sided ninety-five percent confidence limit shall be calculated using Land's method; and

(B) Data shall be assumed to be lognormally distributed unless this assumption is rejected by a statistical test. If a lognormal distribution is inappropriate, data shall be assumed to be normally distributed unless this assumption is rejected by a statistical test. The W test, D'Agostino's test, or, censored probability plots, as appropriate for the data, shall be the statistical methods used to determine whether the data is lognormally or normally distributed.

(ii) Evaluations conducted under subsection (9)(c)(v)(A) of this subsection may use a parametric test for percentiles based on tolerance intervals to test the proportion of ground water samples having concentrations less than the ground water cleanup level. When using this method, the true proportion of samples that do not exceed the ground water cleanup level shall not be less than ninety percent. Statistical tests shall be performed with a Type I error level of 0.05; or

(iii) Other statistical methods approved by the department.

(e) All data analysis methods used, including those specified in state or federal law, must meet the following requirements:

(i) No single sample concentration shall be greater than two times the ground water cleanup level. Higher exceedances to control false positive error rates at five percent may be approved by the department when the cleanup level is based on background concentrations; and

(ii) Less than ten percent of the sample concentrations shall exceed the ground water cleanup level during a representative sampling period. Higher exceedances to control false positive error rates at five percent may be approved by the department when the cleanup level is based on background concentrations; and

(f) When using statistical methods to demonstrate compliance with ground water cleanup levels, the following procedures shall be used for measurements below the practical quantitation limit:

(i) Measurements below the method detection limit shall be assigned a value equal to one-half the method detection limit when not more than fifteen percent of the measurements are below the practical quantitation limit.

(ii) Measurements above the method detection limit but below the practical quantitation limit shall be assigned a value equal to the method detection limit when not more than fifteen percent of the measurements are below the practical quantitation limit.

(iii) When between fifteen and fifty percent of the measurements are below the practical quantitation limit and the data are assumed to be lognormally or normally distributed, Cohen's method shall be used to calculate a corrected mean and standard deviation for use in calculating an upper confidence limit on the true mean ground water concentration.

(iv) If more than fifty percent of the measurements are below the practical quantitation limit, the largest value in the data set shall be used in place of an upper confidence limit on the true mean ground water calculation.

(v) If a hazardous substance or petroleum fraction has never been detected in any sample at a site and these substances are not suspected of being present at the site based on site history and other knowledge, that hazardous substance or petroleum fraction may be excluded from the statistical analysis.

(vi) The department may approve alternate statistical procedures for handling nondetected values or values below the practical quantitation limit.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-720, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-720, filed 1/28/91, effective 2/28/91.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-730 Surface water cleanup standards.

(1) **General considerations.**

(a) Surface water cleanup levels shall be based on estimates of the highest beneficial use and the reasonable maximum exposure expected to occur under both current and potential future site use conditions. The classification and the highest beneficial use of a surface water body, determined in accordance with chapter 173-201A WAC, shall be used to establish the reasonable maximum exposure for that water body. Surface water cleanup levels shall use this presumed exposure scenario and shall be established in accordance with this section.

(b) In the event of a release of a hazardous substance to surface water from a site, a cleanup action that complies with

this chapter shall be conducted to address all areas of the site where the concentration of the hazardous substances in the surface water exceeds cleanup levels.

(c) Surface water cleanup levels established under this section apply to those surface waters of the state affected or potentially affected by releases of hazardous substances from sites addressed under this chapter. The department does not expect that cleanup standards will be applied to storm water runoff that is in the process of being conveyed to a treatment system.

(d) Surface water cleanup levels shall be established at concentrations that do not directly or indirectly cause violations of ground water, soil, sediment, or air cleanup standards established under this chapter or other applicable state and federal laws. A site that qualifies for a Method C surface water cleanup level under this section does not necessarily qualify for a Method C cleanup level in other media. Each medium must be evaluated separately using the criteria applicable to that medium.

(e) The department may require more stringent cleanup levels than specified in this section where necessary to protect other beneficial uses or otherwise protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708.

(2) **Method A surface water cleanup levels.**

(a) **Applicability.** Method A surface water cleanup levels may only be used at sites that qualify under WAC 173-340-704(1).

(b) **General requirements.** Method A surface water cleanup levels shall be at least as stringent as all of the following:

(i) Concentrations established under applicable state and federal laws, including the following requirements:

(A) All water quality criteria published in the water quality standards for surface waters of the state of Washington, chapter 173-201A WAC, as amended;

(B) Water quality criteria based on the protection of aquatic organisms (acute and chronic criteria) and human health published under section 304 of the Clean Water Act.

(C) National toxics rule (40 C.F.R. Part 131);

(ii) For surface waters that are classified as suitable for use as a domestic water supply under chapter 173-201A (excluding marine waters), concentrations derived using the methods specified in WAC 173-340-720 for drinking water beneficial uses; and

(iii) For a hazardous substance deemed an indicator hazardous substance for surface water under WAC 173-340-708(2) and for which there is no value in applicable state and federal laws, a concentration that does not exceed the natural background concentration or the practical quantitation limit, subject to the limitations in this chapter.

(3) **Method B surface water cleanup levels.**

(a) **Applicability.** Method B surface water cleanup levels consist of standard and modified cleanup levels as described in this subsection. Either standard or modified Method B surface water cleanup levels may be used at any site.

(b) **Standard Method B surface water cleanup levels.** Standard Method B cleanup levels for surface waters shall be at least as stringent as all of the following:

(i) **Applicable state and federal laws.** Concentrations established under applicable state and federal laws, including the following requirements:

(A) All water quality criteria published in the water quality standards for surface waters of the state of Washington, chapter 173-201A WAC;

(B) Water quality criteria based on the protection of aquatic organisms (acute and chronic criteria) and human health published under section 304 of the Clean Water Act unless it can be demonstrated that such criteria are not relevant and appropriate for a specific surface water body or hazardous substance; and

(C) National toxics rule (40 C.F.R. Part 131);

(ii) **Environmental effects.** For hazardous substances for which environmental effects-based concentrations have not been established under applicable state or federal laws, concentrations that are estimated to result in no adverse effects on the protection and propagation of wildlife, fish, and other aquatic life. Whole effluent toxicity testing using the protocols described in chapter 173-205 WAC may be used to make this demonstration for fish and aquatic life;

(iii) **Human health protection.** For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations that protect human health as determined by the following methods:

(A) **Noncarcinogens.** For surface waters that support or have the potential to support fish or shellfish populations, concentrations which are estimated to result in no acute or chronic toxic effects on human health as determined using Equation 730-1.

[Equation 730-1]

$$\text{Surface water cleanup level (ug/l)} = \frac{\text{RfD x ABW x UCF1 x UCF2 x HQ x AT}}{\text{BCF x FCR x FDF x ED}}$$

Where:

RfD = Reference dose as specified in WAC 173-340-708(7) (mg/kg-day)
ABW = Average body weight during the exposure duration (70 kg)
UCF1 = Unit conversion factor (1,000 ug/mg)
UCF2 = Unit conversion factor (1,000 grams/liter)
BCF = Bioconcentration factor as defined in WAC 173-340-708(9) (liters/kilogram)
FCR = Fish consumption rate (54 grams/day)
FDF = Fish diet fraction (0.5) (unitless)
HQ = Hazard quotient (1) (unitless)
AT = Averaging time (30 years)
ED = Exposure duration (30 years)

(B) **Carcinogens.** For surface waters which support or have the potential to support fish or shellfish populations, concentrations that are estimated to result in an excess cancer risk less than or equal to one in one million (1×10^{-6}) as determined using Equation 730-2.

[Equation 730-2]

$$\text{Surface water cleanup level (ug/l)} = \frac{\text{RISK x ABW x AT x UCF1 x UCF2}}{\text{CPF x BCF x FCR x FDF x ED}}$$

Where:

CPF = Carcinogenic potency factor as specified in WAC 173-340-708(8) (kg-day/mg)

RISK = Acceptable cancer risk level (1 in 1,000,000) (unitless)
ABW = Average body weight during the exposure duration (70 kg)
AT = Averaging time (75 years)
UCF1 = Unit conversion factor (1,000 ug/mg)
UCF2 = Unit conversion factor (1,000 grams/liter)
BCF = Bioconcentration factor as defined in WAC 173-340-708(9) (liters/kilogram)
FCR = Fish consumption rate (54 grams/day)
FDF = Fish diet fraction (0.5) (unitless)
ED = Exposure duration (30 years)

(C) **Petroleum mixtures.** For noncarcinogenic effects of petroleum mixtures, a total petroleum hydrocarbon cleanup level shall be calculated using Equation 730-1 and by taking into account the additive effects of the petroleum fractions and volatile hazardous substances present in the petroleum mixture. As an alternative to this calculation, the total petroleum hydrocarbon cleanup levels in Table 720-1 may be used. Cleanup levels for other noncarcinogens and known or suspected carcinogens within the petroleum mixture shall be calculated using Equations 730-1 and 730-2. See Table 830-1 for the analyses required for various petroleum products to use this method; and

(iv) **Drinking water considerations.** For surface waters that are classified as suitable for use as a domestic water supply under chapter 173-201A WAC, concentrations derived using the methods specified in WAC 173-340-720 for drinking water beneficial uses.

(c) **Modified Method B surface water cleanup levels.** Modified Method B surface water cleanup levels are standard Method B surface water cleanup levels modified with chemical-specific or site-specific data. When making these adjustments, the resultant cleanup levels shall meet applicable state and federal laws and health risk levels required for standard Method B surface water cleanup levels. Changes to exposure assumptions must comply with WAC 173-340-708(10). The following adjustments may be made to the default assumptions in the standard Method B equations to derive modified Method B surface water cleanup levels:

(i) Adjustments to the reference dose and cancer potency factor may be made if the requirements in WAC 173-340-708 (7) and (8) are met;

(ii) Adjustments to the bioconcentration factor may be made if the requirements in WAC 173-340-708(9) are met;

(iii) Where a numeric environmental effects-based water quality standard does not exist, bioassays that use methods other than those specified in chapter 173-205 WAC may be approved by the department to establish concentrations for the protection of fish and other aquatic life;

(iv) The toxicity equivalency factor procedures described in WAC 173-340-708(8) may be used for assessing the potential carcinogenic risk of mixtures of chlorinated dibenzo-p-dioxins, chlorinated dibenzofurans and polycyclic aromatic hydrocarbons; and

(v) Modifications incorporating new science as provided for in WAC 173-340-702 (14), (15) and (16).

(d) **Using modified Method B to evaluate surface water remediation levels.** In addition to the adjustments allowed under subsection (3)(c) of this section, adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357, and 173-340-708 (3)(d) and (10)(b).

(4) **Method C surface water cleanup levels.**

(a) **Applicability.** Method C surface water cleanup levels consist of standard and modified cleanup levels as described in this subsection. Either standard or modified Method C cleanup levels may be approved by the department if the person undertaking the cleanup action can demonstrate that such levels are consistent with applicable state and federal laws, that all practicable methods of treatment have been used, that institutional controls are implemented in accordance with WAC 173-340-440, and that one or more of the conditions in WAC 173-340-706(1) exist.

(b) **Standard Method C surface water cleanup levels.** Method C cleanup levels for surface waters shall be at least as stringent as all of the following:

(i) **Applicable state and federal laws.** Concentrations established under applicable state and federal laws, including the requirements identified in subsection (3)(b)(i) of this section;

(ii) **Environmental effects.** For hazardous substances for which an environmental effects based concentration has not been established under applicable state or federal laws, those concentrations which are estimated to result in no significant adverse effects on the protection and propagation of wildlife, fish and other aquatic life. Whole effluent toxicity testing using the protocols described in chapter 173-205 WAC may be used to make this demonstration for fish and aquatic life;

(iii) **Human health protection.** For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations which protect human health as determined by the following methods:

(A) **Noncarcinogens.** For surface waters that support or have the potential to support fish or shellfish populations, concentrations that are estimated to result in no significant acute or chronic toxic effects on human health and are estimated in accordance with Equation 730-1 except that the fish diet fraction shall be twenty percent (0.2);

(B) **Carcinogens.** For surface waters that support or have the potential to support fish or shellfish populations, concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one hundred thousand (1×10^{-5}) and are estimated in accordance with Equation 730-2 except that the fish diet fraction shall be twenty percent (0.2);

(C) **Petroleum mixtures.** Cleanup levels for petroleum mixtures shall be calculated as specified in subsection (3)(b)(iii)(C) of this section, except that the fish diet fraction shall be twenty percent (0.2); and

(iv) **Drinking water considerations.** For surface waters that are classified as suitable for use as a domestic water supply under chapter 173-201A WAC, concentrations derived using the methods specified for drinking water beneficial uses in WAC 173-340-720.

(c) **Modified Method C surface water cleanup levels.** Modified Method C surface water cleanup levels are standard Method C surface water cleanup levels modified with chem-

ical-specific or site-specific data. The same limitations and adjustments specified for modified Method B in subsection (3)(c) of this section apply to modified Method C surface water cleanup levels.

(d) **Using modified Method C to evaluate surface water remediation levels.** In addition to the adjustments allowed under subsection (4)(c) of this section, adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357, and 173-340-708 (3)(d) and (10)(b).

(5) **Adjustments to cleanup levels.**

(a) **Total site risk adjustments.** Surface water cleanup levels for individual hazardous substances developed in accordance with subsections (3) and (4) of this section, including those based on applicable state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) and the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with the procedures specified in WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(b) **Adjustments to applicable state and federal laws.** Where a cleanup level developed under subsection (2), (3) or (4) of this section is based on an applicable state or federal law and the level of risk upon which the standard is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level shall be adjusted downward so that the total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}) and the hazard index does not exceed one (1) at the site.

(c) **Natural background and PQL considerations.** Cleanup levels determined under subsections (2), (3) and (4) of this section, including cleanup levels adjusted under subsection (5)(a) and (b) of this subsection, shall not be set at levels below the practical quantitation limit or natural background concentration, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional requirements pertaining to practical quantitation limits and natural background concentrations.

(d) **Nonaqueous phase liquid limitation.** For organic hazardous substances and petroleum hydrocarbons, the cleanup level shall not exceed a concentration that would result in nonaqueous phase liquid being present in or on the surface water. Physical observations of surface water at or above the cleanup level, such as the lack of a film, sheen, discoloration, sludge or emulsion in the surface water or adjoining shoreline, may be used to determine compliance with this requirement.

(6) **Point of compliance.**

(a) The point of compliance for the surface water cleanup levels shall be the point or points at which hazardous substances are released to surface waters of the state unless the department has authorized a mixing zone in accordance with chapter 173-201A WAC.

(b) Where hazardous substances are released to the surface water as a result of ground water flows, no mixing zone shall be allowed to demonstrate compliance with surface water cleanup levels. See WAC 173-340-720 (8)(d) for additional requirements for sites where contaminated ground water is flowing into surface water.

(c) As used in this subsection, "mixing zone" means that portion of a surface water body adjacent to an effluent outfall where mixing results in dilution of the effluent with the receiving water. See chapter 173-201A WAC for additional information on mixing zones.

(7) **Compliance monitoring.**

(a) When surface water cleanup levels have been established at a site, sampling of the surface water shall be conducted to determine if compliance with the surface water cleanup levels has been achieved. Sampling and analytical procedures shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. The sample design shall provide data that are representative of the site.

(b) The data analysis and evaluation procedures used to evaluate compliance with surface water cleanup levels shall be defined in a compliance monitoring plan prepared under WAC 173-340-410.

(c) Compliance with surface water cleanup standards shall be determined by analyses of unfiltered surface water samples, unless it can be demonstrated that a filtered sample provides a more representative measure of surface water quality.

(d) When surface water cleanup levels are based on requirements specified in applicable state and federal laws, the procedures for evaluating compliance that are specified in those requirements shall be used to evaluate compliance with surface water cleanup levels unless those procedures conflict with the intent of this section.

(e) Where procedures for evaluating compliance are not specified in an applicable state and federal law, compliance with surface water cleanup levels shall be evaluated using procedures approved by the department. Where statistical methods are used to evaluate compliance, the statistical methods shall be appropriate for the distribution of the hazardous substance sampling data. If the distribution of the hazardous substance sampling data is inappropriate for statistical methods based on a normal distribution, then the data may be transformed. If the distributions of individual hazardous substances differ, more than one statistical method may be required.

(f) Sampling and analysis of fish tissue, shellfish, or other aquatic organisms and sediments may be required to supplement water column sampling during compliance monitoring.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-730, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-730, filed 1/28/91, effective 2/28/91.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-740 Unrestricted land use soil cleanup standards. (1) General considerations.

(a) Presumed exposure scenario soil cleanup levels shall be based on estimates of the reasonable maximum exposure expected to occur under both current and future site use conditions. The department has determined that residential land use is generally the site use requiring the most protective cleanup levels and that exposure to hazardous substances under residential land use conditions represents the reasonable maximum exposure scenario. Unless a site qualifies for use of an industrial soil cleanup level under WAC 173-340-745, soil cleanup levels shall use this presumed exposure scenario and be established in accordance with this section.

(b) In the event of a release of a hazardous substance to the soil at a site, a cleanup action complying with this chapter shall be conducted to address all areas where the concentration of hazardous substances in the soil exceeds cleanup levels at the relevant point of compliance.

(c) The department may require more stringent soil cleanup standards than required by this section where, based on a site-specific evaluation, the department determines that this is necessary to protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708. The following are examples of situations that may require more stringent cleanup levels.

(i) Concentrations that eliminate or substantially reduce the potential for food chain contamination;

(ii) Concentrations that eliminate or substantially reduce the potential for damage to soils or biota in the soils which could impair the use of soils for agricultural or silvicultural purposes;

(iii) Concentrations necessary to address the potential health risk posed by dust at a site;

(iv) Concentrations necessary to protect the ground water at a particular site;

(v) Concentrations necessary to protect nearby surface waters from hazardous substances in runoff from the site; and

(vi) Concentrations that eliminate or minimize the potential for the accumulation of vapors in buildings or other structures.

(d) Relationship between soil cleanup levels and other cleanup standards. Soil cleanup levels shall be established at concentrations that do not directly or indirectly cause violations of ground water, surface water, sediment, or air cleanup standards established under this chapter or applicable state and federal laws. A property that qualifies for a Method C soil cleanup level under WAC 173-340-745 does not necessarily qualify for a Method C cleanup level in other media. Each medium must be evaluated separately using the criteria applicable to that medium.

(2) **Method A soil cleanup levels for unrestricted land use.**

(a) **Applicability.** Method A soil cleanup levels may only be used at sites qualifying under WAC 173-340-704(1).

(b) **General requirements.** Method A soil cleanup levels shall be at least as stringent as all of the following:

(i) Concentrations in Table 740-1 and compliance with the corresponding footnotes;

(ii) Concentrations established under applicable state and federal laws;

(iii) Concentrations that result in no significant adverse effects on the protection and propagation of terrestrial ecological receptors using the procedures specified in WAC 173-340-7490 through 173-340-7493, unless it is demonstrated under those sections that establishing a soil concentration is unnecessary; and

(iv) For a hazardous substance that is deemed an indicator hazardous substance under WAC 173-340-708(2) and for which there is no value in Table 740-1 or applicable state and federal laws, a concentration that does not exceed the natural background concentration or the practical quantification limit, subject to the limitations in this chapter.

(3) **Method B soil cleanup levels for unrestricted land use.**

(a) **Applicability.** Method B soil cleanup levels consist of standard and modified cleanup levels determined using the procedures in this subsection. Either standard or modified Method B soil cleanup levels may be used at any site.

(b) **Standard Method B soil cleanup levels.** Standard Method B cleanup levels for soils shall be at least as stringent as all of the following:

(i) **Applicable state and federal laws.** Concentrations established under applicable state and federal laws;

(ii) **Environmental protection.** Concentrations that result in no significant adverse effects on the protection and propagation of terrestrial ecological receptors established using the procedures specified in WAC 173-340-7490 through 173-340-7494 unless it is demonstrated under those sections that establishing a soil concentration is unnecessary.

(iii) **Human health protection.** For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations that protect human health as determined by evaluating the following exposure pathways:

(A) **Ground water protection.** Concentrations that will not cause contamination of ground water at levels which exceed ground water cleanup levels established under WAC 173-340-720 as determined using the methods described in WAC 173-340-747.

(B) **Soil direct contact.** Concentrations that, due to direct contact with contaminated soil, are estimated to result in no acute or chronic noncarcinogenic toxic effects on human health using a hazard quotient of one (1) and concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one million (1×10^{-6}). Equations 740-1 and 740-2 and the associated default assumptions shall be used to calculate the concentration for direct contact with contaminated soil.

(I) **Noncarcinogens.** For noncarcinogenic toxic effects of hazardous substances due to soil ingestion, concentrations shall be determined using Equation 740-1. For petroleum mixtures and components of such mixtures, see (b)(iii)(B)(III) of this subsection.

[Equation 740-1]

$$\text{Soil Cleanup Level (mg/kg)} = \frac{\text{RfD} \times \text{ABW} \times \text{UCF} \times \text{HQ} \times \text{AT}}{\text{SIR} \times \text{AB1} \times \text{EF} \times \text{ED}}$$

Where:

RfD = Reference dose as defined in WAC 173-340-708(7) (mg/kg-day)
ABW = Average body weight over the exposure duration (16 kg)
UCF = Unit conversion factor (1,000,000 mg/kg)
SIR = Soil ingestion rate (200 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
EF = Exposure frequency (1.0) (unitless)
HQ = Hazard quotient (1) (unitless)
AT = Averaging time (6 years)
ED = Exposure duration (6 years)

(II) **Carcinogens.** For carcinogenic effects of hazardous substances due to soil ingestion, concentrations shall be determined using Equation 740-2. For petroleum mixtures and components of such mixtures, see (b)(iii)(B)(III) of this subsection.

[Equation 740-2]

$$\text{Soil Cleanup Level (mg/kg)} = \frac{\text{RISK x ABW x AT x UCF}}{\text{CPF x SIR x AB1 x ED x EF}}$$

Where:

RISK = Acceptable cancer risk level (1 in 1,000,000) (unitless)
ABW = Average body weight over the exposure duration (16 kg)
AT = Averaging time (75 years)
UCF = Unit conversion factor (1,000,000 mg/kg)
CPF = Carcinogenic potency factor as defined in WAC 173-340-708(8) (kg-day/mg)
SIR = Soil ingestion rate (200 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
ED = Exposure duration (6 years)
EF = Exposure frequency (1.0) (unitless)

(III) **Petroleum mixtures.** For noncarcinogenic effects of petroleum mixtures, a total petroleum hydrocarbon cleanup level shall be calculated taking into account the additive effects of the petroleum fractions and volatile organic compounds substances present in the petroleum mixture. Equation 740-3 shall be used for this calculation. This equation takes into account concurrent exposure due to ingestion and dermal contact with petroleum contaminated soils. Cleanup levels for other noncarcinogens and known or suspected carcinogens within the petroleum mixture shall be calculated using Equations 740-4 and 740-5. See Table 830-1 for the analyses required for various petroleum products to use this method.

[Equation 740-3]

$$C_{soil} = \frac{HI \times ABW \times AT}{EF \times ED \left[\left(\frac{SIR \times AB1}{10^6 mg/kg} \sum_{i=1}^{n} \frac{F(i)}{RfDo(i)} \right) + \left(\frac{SA \times AF}{10^6 mg/kg} \sum_{i=1}^{n} \frac{F(i) \times ABS(i)}{RfDd(i)} \right) \right]}$$

Where:

C_{soil} = TPH soil cleanup level (mg/kg)
HI = Hazard index (1) (unitless)
ABW = Average body weight over the exposure duration (16 kg)
AT = Averaging time (6 years)
EF = Exposure frequency (1.0) (unitless)
ED = Exposure duration (6 years)
SIR = Soil ingestion rate (200 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
F(i) = Fraction (by weight) of petroleum component (i) (unitless)
SA = Dermal surface area (2,200 cm^2)
AF = Adherence factor (0.2 mg/cm^2-day)
ABS = Dermal absorption fraction for petroleum component (i) (unitless). May use chemical-specific values or the following defaults:
- 0.0005 for volatile petroleum components with vapor press > = benzene
- 0.03 for volatile petroleum components with vapor press < benzene
- 0.1 for other petroleum components

RfDo(i) = Oral reference dose of petroleum component (i) as defined in WAC 173-340-708(7) (mg/kg-day)
RfDd(i) = Dermal reference dose for petroleum component (i) (mg/kg-day) derived by RfDo x GI
GI = Gastrointestinal absorption conversion factor (unitless). May use chemical-specific values or the following defaults:
- 0.8 for volatile petroleum components
- 0.5 for other petroleum components

n = The number of petroleum components (petroleum fractions plus volatile organic compounds with an RfD) present in the petroleum mixture. (See Table 830-1.)

(C) **Soil vapors.** The soil to vapor pathway shall be evaluated for volatile organic compounds whenever any of the following conditions exist:

(I) For gasoline range organics, whenever the total petroleum hydrocarbon (TPH) concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(6) using the default assumptions;

(II) For diesel range organics, whenever the total petroleum hydrocarbon (TPH) concentration is greater than 10,000 mg/kg;

(III) For other volatile organic compounds, including petroleum components, whenever the concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(4).

See subsection (3)(c)(iv)(B) of this section for methods that may be used to evaluate the soil to vapor pathway.

(c) **Modified Method B soil cleanup levels.**

(i) **General.** Modified Method B soil cleanup levels are standard Method B soil cleanup levels, modified with chemical-specific or site-specific data. When making these modifications, the resultant cleanup levels shall meet applicable state and federal laws, meet health risk levels for standard Method B soil cleanup levels, and be demonstrated to be environmentally protective using the procedures specified in WAC 173-340-7490 through 173-340-7494. Changes to exposure assumptions must comply with WAC 173-340-708(10).

(ii) **Allowable modifications.** The following modifications can be made to the default assumptions in the standard Method B equations to derive modified Method B soil cleanup levels:

(A) For the protection of ground water, see WAC 173-340-747;

(B) For soil ingestion, the gastrointestinal absorption fraction, may be modified if the requirements of WAC 173-340-702 (14), (15), (16), and 173-340-708(10) are met;

(C) For dermal contact, the adherence factor, dermal absorption fraction and gastrointestinal absorption conversion factor may be modified if the requirements of WAC 173-340-702 (14), (15), (16), and 173-340-708(10) are met;

(D) Toxicity equivalent factors, as described in WAC 173-340-708(8), may be used for assessing the potential carcinogenic risk of mixtures of chlorinated dibenzo-p-dioxins, chlorinated dibenzofurans and polycyclic aromatic hydrocarbons;

(E) The reference dose and cancer potency factor may be modified if the requirements in WAC 173-340-708 (7) and (8) are met; and

(F) Other modifications incorporating new science as provided for in WAC 173-340-702 (14), (15) and (16).

(iii) **Dermal contact.** For hazardous substances other than petroleum mixtures, dermal contact with the soil shall be evaluated whenever the proposed changes to Equations 740-1 or 740-2 would result in a significantly higher soil cleanup level than would be calculated without the proposed changes. When conducting this evaluation, the following equations and default assumptions shall be used.

(A) For noncarcinogens use Equation 740-4. This equation takes into account concurrent exposure due to ingestion and dermal contact with soil.

[Equation 740-4]

$$C_{soil} = \frac{HQ \times ABW \times AT}{EF \times ED\left[\left(\frac{1}{RfDo} \times \frac{SIR \times AB1}{10^6 mg/kg}\right) + \left(\frac{1}{RfDd} \times \frac{SA \times AF \times ABS}{10^6 mg/kg}\right)\right]}$$

Where:

C_{soil} = Soil cleanup level (mg/kg)
HQ = Hazard quotient (unitless)
ABW = Average body weight over the exposure duration (16 kg)
AT = Averaging time (6 years)
EF = Exposure frequency (1.0) (unitless)
ED = Exposure duration (6 years)
SIR = Soil ingestion rate (200 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
SA = Dermal surface area (2,200 cm^2)
AF = Adherence factor (0.2 mg/cm^2-day)
ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:
- 0.01 for inorganic hazardous substances
- 0.0005 for volatile organic compounds with vapor press >= benzene
- 0.03 for volatile organic compounds with vapor press < benzene
- 0.1 for other organic hazardous substances

RfDo = Oral reference dose as defined in WAC 173-340-708(7) (mg/kg-day)
RfDd = Dermal reference dose (mg/kg-day) derived by RfDo x GI
GI = Gastrointestinal absorption conversion factor (unitless). May use chemical specific values or the following defaults:
- 0.2 for inorganic hazardous substances
- 0.8 for volatile organic compounds
- 0.5 for other organic hazardous substances

(B) For carcinogens use Equation 740-5. This equation takes into account concurrent exposure due to ingestion and dermal contact with soil.

[Equation 740-5]

$$C_{soil} = \frac{RISK \times ABW \times AT}{EF \times ED\left[\left(\frac{SIR \times AB1 \times CPFo}{10^6 mg/kg}\right) + \left(\frac{SA \times AF \times ABS \times CPFd}{10^6 mg/kg}\right)\right]}$$

Where:

C_{soil} = Soil cleanup level (mg/kg)
RISK = Acceptable cancer risk (1 in 1,000,000) (unitless)
ABW = Average body weight over the exposure duration (16 kg)
AT = Averaging time (75 years)
EF = Exposure frequency (1.0) (unitless)
ED = Exposure duration (6 years)
SIR = Soil ingestion rate (200 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
CPFo = Oral cancer potency factor as defined in WAC 173-340-708(8) (kg-day/mg)
CPFd = Dermal cancer potency factor (kg-day/mg) derived by CPFo/GI
GI = Gastrointestinal absorption conversion factor (unitless). May use chemical-specific values or the following defaults:
- 0.2 for inorganic hazardous substances
- 0.8 for volatile organic compounds
- 0.5 for other organic hazardous substances

SA = Dermal surface area (2,200 cm^2)
AF = Adherence factor (0.2 mg/cm^2-day)
ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:
- 0.01 for inorganic hazardous substances
- 0.0005 for volatile organic compounds with vapor press >= benzene
- 0.03 for volatile organic compounds with vapor press < benzene
- 0.1 for other organic hazardous substances

(C) Modifications may be made to Equations 740-4 and 740-5 as provided for in subsection (3)(c)(ii) of this section.

(iv) **Soil vapors.**

(A) **Applicability.** The soil to vapor pathway shall be evaluated for volatile organic compounds whenever any of the following conditions exist:

(I) For other than petroleum hydrocarbon mixtures, the proposed changes to the standard Method B equations (Equations 740-1 and 740-2) or default values would result in a significantly higher soil cleanup level than would be calculated without the proposed changes;

(II) For petroleum hydrocarbon mixtures, the proposed changes to the standard Method B equations (Equations 740-3, 740-4 and 740-5) or default values would result in a significantly higher soil cleanup level than would be calculated without the proposed changes;

(III) For gasoline range organics, whenever the total petroleum hydrocarbon (TPH) concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(6) using the default assumptions;

(IV) For diesel range organics, whenever the total petroleum hydrocarbon (TPH) concentration is greater than 10,000 mg/kg;

(V) For other volatile organic compounds, including petroleum components, whenever the concentration is significantly higher than a concentration derived for protection of

ground water for drinking water beneficial use under WAC 173-340-747(4).

(B) **Evaluation methods.** Soil cleanup levels that are protective of the indoor and ambient air shall be determined on a site-specific basis. Soil cleanup levels may be evaluated as being protective of air pathways using any of the following methods:

(I) Measurements of the soil vapor concentrations, using methods approved by the department, demonstrating vapors in the soil would not exceed air cleanup levels established under WAC 173-340-750.

(II) Measurements of ambient air concentrations and/or indoor air vapor concentrations throughout buildings, using methods approved by the department, demonstrating air does not exceed cleanup levels established under WAC 173-340-750. Such measurements must be representative of current and future site conditions when vapors are likely to enter and accumulate in structures. Measurement of ambient air may be excluded if it can be shown that indoor air is the most protective point of exposure.

(III) Use of modeling methods approved by the department to demonstrate the air cleanup standards established under WAC 173-340-750 will not be exceeded. When this method is used, the department may require soil vapor and/or air monitoring to be conducted to verify the calculations and compliance with air cleanup standards.

(IV) Other methods as approved by the department demonstrating the air cleanup standards established under WAC 173-340-750 will not be exceeded.

(d) **Using modified Method B to evaluate soil remediation levels.** In addition to the adjustments allowed under subsection (3)(c) of this section, adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357, and 173-340-708 (3)(d) and (10)(b).

(4) **Method C soil cleanup levels.** This section does not provide procedures for establishing Method C soil cleanup levels. Except for qualifying industrial properties, Method A and Method B, as described in this section, are the only methods available for establishing soil cleanup levels at sites. See WAC 173-340-745 for use of Method C soil cleanup levels at qualifying industrial properties. See also WAC 173-340-357 and 173-340-708 (3)(d) for how land use may be considered when selecting a cleanup action at a site.

(5) **Adjustments to cleanup levels.**

(a) **Total site risk adjustments.** Soil cleanup levels for individual hazardous substances developed in accordance with subsection (3) of this section, including cleanup levels based on applicable state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with the procedures specified in WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(b) **Adjustments to applicable state and federal laws.** Where a cleanup level developed under subsection (2) or (3) of this section is based on an applicable state or federal law and the level of risk upon which the standard is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level must be adjusted downward so that the total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}) and the hazard index does not exceed one (1) at the site.

(c) **Natural background and PQL considerations.** Cleanup levels determined under subsection (2) or (3) of this section, including cleanup levels adjusted under subsection (5)(a) and (b) of this section, shall not be set at levels below the practical quantitation limit or natural background, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional requirements pertaining to practical quantitation limits and natural background.

(6) **Point of compliance.**

(a) The point of compliance is the point or points where the soil cleanup levels established under subsection (2) or (3) of this section shall be attained.

(b) For soil cleanup levels based on the protection of ground water, the point of compliance shall be established in the soils throughout the site.

(c) For soil cleanup levels based on protection from vapors, the point of compliance shall be established in the soils throughout the site from the ground surface to the uppermost ground water saturated zone (e.g., from the ground surface to the uppermost water table).

(d) For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the site from the ground surface to fifteen feet below the ground surface. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities.

(e) For soil cleanup levels based on ecological considerations, see WAC 173-340-7490 for the point of compliance.

(f) The department recognizes that, for those cleanup actions selected under this chapter that involve containment of hazardous substances, the soil cleanup levels will typically not be met at the points of compliance specified in (b) through (e) of this subsection. In these cases, the cleanup action may be determined to comply with cleanup standards, provided:

(i) The selected remedy is permanent to the maximum extent practicable using the procedures in WAC 173-340-360;

(ii) The cleanup action is protective of human health. The department may require a site-specific human health risk assessment conforming to the requirements of this chapter to demonstrate that the cleanup action is protective of human health;

(iii) The cleanup action is demonstrated to be protective of terrestrial ecological receptors under WAC 173-340-7490 through 173-340-7494;

(iv) Institutional controls are put in place under WAC 173-340-440 that prohibit or limit activities that could interfere with the long-term integrity of the containment system;

(v) Compliance monitoring under WAC 173-340-410 and periodic reviews under WAC 173-340-430 are designed to ensure the long-term integrity of the containment system; and

(vi) The types, levels and amount of hazardous substances remaining on-site and the measures that will be used to prevent migration and contact with those substances are specified in the draft cleanup action plan.

(7) **Compliance monitoring.**

(a) Compliance with soil cleanup levels shall be based on total analyses of the soil fraction less than two millimeters in size. When it is reasonable to expect that larger soil particles could be reduced to two millimeters or less during current or future site use and this reduction could cause an increase in the concentrations of hazardous substances in the soil, soil cleanup levels shall also apply to these larger soil particles. Compliance with soil cleanup levels shall be based on dry weight concentrations. The department may approve the use of alternate procedures for stabilized soils.

(b) When soil levels have been established at a site, sampling of the soil shall be conducted to determine if compliance with the soil cleanup levels has been achieved. Sampling and analytical procedures shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. The sample design shall provide data that are representative of the area where exposure to hazardous substances may occur.

(c) The data analysis and evaluation procedures used to evaluate compliance with soil cleanup levels shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. These procedures shall meet the following general requirements:

(i) Methods of data analysis shall be consistent with the sampling design. Separate methods may be specified for surface soils and deeper soils;

(ii) When cleanup levels are based on requirements specified in applicable state and federal laws, the procedures for evaluating compliance that are specified in those requirements shall be used to evaluate compliance with cleanup levels unless those procedures conflict with the intent of this section;

(iii) Where procedures for evaluating compliance are not specified in an applicable state and federal law, statistical methods shall be appropriate for the distribution of sampling data for each hazardous substance. If the distributions for hazardous substances differ, more than one statistical method may be required; and

(iv) The data analysis plan shall specify which parameters are to be used to determine compliance with soil cleanup levels.

(A) For cleanup levels based on short-term or acute toxic effects on human health or the environment, an upper percentile soil concentration shall be used to evaluate compliance with cleanup levels.

(B) For cleanup levels based on chronic or carcinogenic threats, the true mean soil concentration shall be used to evaluate compliance with cleanup levels.

(d) When data analysis procedures for evaluating compliance are not specified in an applicable state or federal law the following procedures shall be used:

(i) A confidence interval approach that meets the following requirements:

(A) The upper one sided ninety-five percent confidence limit on the true mean soil concentration shall be less than the soil cleanup level. For lognormally distributed data, the upper one-sided ninety-five percent confidence limit shall be calculated using Land's method; and

(B) Data shall be assumed to be lognormally distributed unless this assumption is rejected by a statistical test. If a lognormal distribution is inappropriate, data shall be assumed to be normally distributed unless this assumption is rejected by a statistical test. The W test, D'Agostino's test, or, censored probability plots, as appropriate for the data, shall be the statistical methods used to determine whether the data are lognormally or normally distributed;

(ii) For an evaluation conducted under (c)(iv)(A) of this subsection, a parametric test for percentiles based on tolerance intervals to test the proportion of soil samples having concentrations less than the soil cleanup level. When using this method, the true proportion of samples that do not exceed the soil cleanup level shall not be less than ninety percent. Statistical tests shall be performed with a Type I error level of 0.05;

(iii) Direct comparison of soil sample concentrations with cleanup levels may be used to evaluate compliance with cleanup levels where selective sampling of soil can be reliably expected to find suspected soil contamination. There must be documented, reliable information that the soil samples have been taken from the appropriate locations. Persons using this method must demonstrate that the basis used for selecting the soil sample locations provides a high probability that any existing areas of soil contamination have been found; or

(iv) Other statistical methods approved by the department.

(e) All data analysis methods used, including those specified in state and federal law, must meet the following requirements:

(i) No single sample concentration shall be greater than two times the soil cleanup level. Higher exceedances to control false positive error rates at five percent may be approved by the department when the cleanup level is based on background concentrations; and

(ii) Less than ten percent of the sample concentrations shall exceed the soil cleanup level. Higher exceedances to control false positive error rates at five percent may be approved by the department when the cleanup level is based on background concentrations.

(f) When using statistical methods to demonstrate compliance with soil cleanup levels, the following procedures shall be used for measurements below the practical quantitation limit:

(i) Measurements below the method detection limit shall be assigned a value equal to one-half the method detection limit when not more than fifteen percent of the measurements are below the practical quantitation limit.

(ii) Measurements above the method detection limit but below the practical quantitation limit shall be assigned a value equal to the method detection limit when not more than fifteen percent of the measurements are below the practical quantitation limit.

(iii) When between fifteen and fifty percent of the measurements are below the practical quantitation limit and the data are assumed to be lognormally or normally distributed, Cohen's method shall be used to calculate a corrected mean and standard deviation for use in calculating an upper confidence limit on the true mean soil concentration.

(iv) If more than fifty percent of the measurements are below the practical quantitation limit, the largest value in the data set shall be used in place of an upper confidence limit on the true mean soil concentration.

(v) The department may approve alternate statistical procedures for handling nondetected values or values below the practical quantitation limit.

(vi) If a hazardous substance or petroleum fraction has never been detected in any sample at a site and these substances are not suspected of being present at the site based on site history and other knowledge, that hazardous substance or petroleum fraction may be excluded from the statistical analysis.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-740, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-740, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-740, filed 1/28/91, effective 2/28/91.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-745 Soil cleanup standards for industrial properties. (1) Applicability.

(a) Criteria. This section shall be used to establish soil cleanup levels where the department has determined that industrial land use represents the reasonable maximum exposure. Soil cleanup levels for this presumed exposure scenario shall be established in accordance with this section. To qualify as an industrial land use and to use an industrial soil cleanup level a site must meet the following criteria:

(i) The area of the site where industrial property soil cleanup levels are proposed must meet the definition of an industrial property under WAC 173-340-200;

Industrial soil cleanup levels are based on an adult worker exposure scenario. It is essential to evaluate land uses and zoning for compliance with this definition in the context of this exposure scenario. Local governments use a variety of zoning categories for industrial land uses so a property does not necessarily have to be in a zone called "industrial" to meet the definition of "industrial property." Also, there are land uses allowed in industrial zones that are actually commercial or residential, rather than industrial, land uses. Thus, an evaluation to determine compliance with this definition should include a review of the actual text in the comprehensive plan and zoning ordinance pertaining to the site and a visit to the site to observe land uses in the zone. When evaluating land uses to determine if a property use not specifically listed in the definition is a "traditional industrial use" or to determine if the property is "zoned for industrial use," the following characteristics shall be considered:

(A) People do not normally live on industrial property. The primary potential exposure is to adult employees of businesses located on the industrial property;

(B) Access to industrial property by the general public is generally not allowed. If access is allowed, it is highly limited and controlled due to safety or security considerations;

(C) Food is not normally grown/raised on industrial property. (However, food processing operations are commonly considered industrial facilities);

(D) Operations at industrial properties are often (but not always) characterized by use and storage of chemicals, noise, odors and truck traffic;

(E) The surface of the land at industrial properties is often (but not always) mostly covered by buildings or other structures, paved parking lots, paved access roads and material storage areas—minimizing potential exposure to the soil; and

(F) Industrial properties may have support facilities consisting of offices, restaurants, and other facilities that are commercial in nature but are primarily devoted to administrative functions necessary for the industrial use and/or are primarily intended to serve the industrial facility employees and not the general public.

(ii) The cleanup action provides for appropriate institutional controls implemented in accordance with WAC 173-340-440 to limit potential exposure to residual hazardous substances. This shall include, at a minimum, placement of a covenant on the property restricting use of the area of the site where industrial soil cleanup levels are proposed to industrial property uses; and

(iii) Hazardous substances remaining at the property after remedial action would not pose a threat to human health or the environment at the site or in adjacent nonindustrial areas. In evaluating compliance with this criterion, at a minimum the following factors shall be considered:

(A) The potential for access to the industrial property by the general public, especially children. The proximity of the industrial property to residential areas, schools or childcare facilities shall be considered when evaluating access. In addition, the presence of natural features, manmade structures, arterial streets or intervening land uses that would limit or encourage access to the industrial property shall be considered. Fencing shall not be considered sufficient to limit access to an industrial property since this is insufficient to assure long term protection;

(B) The degree of reduction of potential exposure to residual hazardous substances by the selected remedy. Where the residual hazardous substances are to be capped to reduce exposure, consideration shall be given to the thickness of the cap and the likelihood of future site maintenance activities, utility and drainage work, or building construction reexposing residual hazardous substances;

(C) The potential for transport of residual hazardous substances to off-property areas, especially residential areas, schools and childcare facilities;

(D) The potential for significant adverse effects on wildlife caused by residual hazardous substances using the procedures in WAC 173-340-7490 through 173-340-7494; and

(E) The likelihood that these factors would not change for the foreseeable future.

(b) **Expectations.** In applying the criteria in (a) of this subsection, the department expects the following results:

(i) The department expects that properties zoned for heavy industrial or high intensity industrial use and located within a city or county that has completed a comprehensive plan and adopted implementing zoning regulations under the Growth Management Act (chapter 36.70A RCW) will meet the definition of industrial property. For cities and counties not planning under the Growth Management Act, the department expects that spot zoned industrial properties will not meet the definition of industrial property but that properties that are part of a larger area zoned for heavy industrial or high intensity industrial use will meet the definition of an industrial property;

(ii) For both GMA and non-GMA cities and counties, the department expects that light industrial and commercial zones and uses should meet the definition of industrial property where the land uses are comparable to those cited in the definition of industrial property or the land uses are an integral part of a qualifying industrial use (such as, ancillary or support facilities). This will require a site-by-site evaluation of the zoning text and land uses;

(iii) The department expects that for portions of industrial properties in close proximity to (generally, within a few hundred feet) residential areas, schools or childcare facilities, residential soil cleanup levels will be used unless:

(A) Access to the industrial property is very unlikely or, the hazardous substances that are not treated or removed are contained under a cap of clean soil (or other materials) of substantial thickness so that it is very unlikely the hazardous substances would be disturbed by future site maintenance and construction activities (depths of even shallow footings, utilities and drainage structures in industrial areas are typically three to six feet); and

(B) The hazardous substances are relatively immobile (or have other characteristics) or have been otherwise contained so that subsurface lateral migration or surficial transport via dust or runoff to these nearby areas or facilities is highly unlikely; and

(iv) Note that a change in the reasonable maximum exposure to industrial site use primarily affects the direct contact exposure pathway. Thus, for example, for sites where the soil cleanup level is based primarily on the potential for the hazardous substance to leach and cause ground water contamination, it is the department's expectation that an industrial land use will not affect the soil cleanup level. Similarly, where the soil cleanup level is based primarily on surface water protection or other pathways other than direct human contact, land use is not expected to affect the soil cleanup level.

(2) **General considerations.**

(a) In the event of a release of a hazardous substance at a site qualifying as industrial property, a cleanup action that complies with this chapter shall be conducted to address those soils with hazardous substance concentrations which exceed industrial soil cleanup levels at the relevant point of compliance.

(b) Soil cleanup levels for areas beyond the industrial property boundary that do not qualify for industrial soil cleanup levels under this section (including implementation of institutional controls and a covenant restricting use of the property to industrial property uses) shall be established in accordance with WAC 173-340-740.

(c) Industrial soil cleanup levels shall be established at concentrations that do not directly or indirectly cause violations of ground water, surface water, sediment or air cleanup standards established under this chapter or under applicable state and federal laws. A property that qualifies for an industrial soil cleanup level under this section does not necessarily qualify for a Method C cleanup level in other media. Each medium must be evaluated separately using the criteria applicable to that medium.

(d) The department may require more stringent soil cleanup standards than required by this section when, based on a site-specific evaluation, the department determines that this is necessary to protect human health and the environment, including consideration of the factors in WAC 173-340-740 (1)(c). Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708.

(3) **Method A industrial soil cleanup levels.**

(a) **Applicability.** Method A industrial soil cleanup levels may be used only at any industrial property qualifying under WAC 173-340-704(1).

(b) **General requirements.** Method A industrial soil cleanup levels shall be at least as stringent as all of the following:

(i) Concentrations in Table 745-1 and compliance with the corresponding footnotes;

(ii) Concentrations established under applicable state and federal laws;

(iii) Concentrations that result in no significant adverse effects on the protection and propagation of terrestrial ecological receptors using the procedures specified in WAC 173-340-7490 through 173-340-7493, unless it is demonstrated under those sections that establishing a soil concentration is unnecessary; and

(iv) For a hazardous substance that is deemed an indicator hazardous substance under WAC 173-340-708(2) and for which there is no value in Table 745-1 or applicable state and federal laws, a concentration that does not exceed the natural background concentration or the practical quantification limit, subject to the limitations in this chapter.

(4) **Method B industrial soil cleanup levels.** This section does not provide procedures for establishing Method B industrial soil cleanup levels. Method C is the standard method for establishing soil cleanup levels at industrial sites and its use is conditioned upon the continued use of the site for industrial purposes. The person conducting the cleanup action also has the option of establishing unrestricted land use soil cleanup levels under WAC 173-340-740 for qualifying industrial properties. This option may be desirable when the person wants to avoid restrictions on the future use of the property. When a site does not qualify for a Method A or Method C industrial soil cleanup level under this section, or the user chooses to establish unrestricted land use soil cleanup levels at a site, soil cleanup levels must be established using Methods A or B under WAC 173-340-740.

(5) **Method C industrial soil cleanup levels.**

(a) **Applicability.** Method C industrial soil cleanup levels consist of standard and modified cleanup levels as described in this subsection. Either standard or modified Method C soil cleanup levels may be used at any industrial property qualifying under subsection (1) of this section.

(b) **Standard Method C industrial soil cleanup levels.** Standard Method C industrial soil cleanup levels for industrial properties shall be at least as stringent as all of the following:

(i) **Applicable state and federal laws.** Concentrations established under applicable state and federal laws;

(ii) **Environmental protection.** Concentrations that result in no significant adverse effects on the protection and propagation of wildlife established using the procedures specified in WAC 173-340-7490 through 173-340-7494, unless it is demonstrated under those sections that establishing a soil concentration is unnecessary.

(iii) **Human health protection.** For hazardous substances for which sufficiently protective, health-based criteria or standards have not been established under applicable state and federal laws, those concentrations that protect human health as determined by evaluating the following exposure pathways:

(A) **Ground water protection.** Concentrations that will not cause contamination of ground water to concentrations which exceed ground water cleanup levels established under WAC 173-340-720 as determined using the methods described in WAC 173-340-747.

(B) **Soil direct contact.** Concentrations that, due to direct contact with contaminated soil, are estimated to result in no acute or chronic noncarcinogenic toxic effects on human health using a hazardous quotient of one (1) and concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one hundred thousand (1×10^{-5}). Equations 745-1 and 745-2 and the associated default assumptions shall be used to conduct this calculation.

(I) **Noncarcinogens.** For noncarcinogenic toxic effects of hazardous substances due to soil ingestion, concentrations shall be determined using Equation 745-1. For petroleum mixtures and components of such mixtures, see (b)(iii)(B)(III) of this subsection.

[Equation 745-1]

$$\text{Soil Cleanup Level (mg/kg)} = \frac{\text{RfD x ABW x UCF x HQ x AT}}{\text{SIR x AB1 x EF x ED}}$$

Where:

- RfD = Reference dose as specified in WAC 173-340-708(7) (mg/kg-day)
- ABW = Average body weight over the exposure duration (70 kg)
- UCF = Unit conversion factor (1,000,000 mg/kg)
- SIR = Soil ingestion rate (50 mg/day)
- AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
- EF = Exposure frequency (0.4) (unitless)
- HQ = Hazard quotient (1) (unitless)
- AT = Averaging time (20 years)
- ED = Exposure duration (20 years)

(II) **Carcinogens.** For carcinogenic effects of hazardous substances due to soil ingestion, concentrations shall be determined using Equation 745-2. For petroleum mixtures and components of such mixtures, see (b)(iii)(B)(III) of this subsection.

[Equation 745-2]

$$\text{Soil Cleanup Level (mg/kg)} = \frac{\text{RISK x ABW x AT x UCF}}{\text{CPF x SIR x AB1 x ED x EF}}$$

Where:

- RISK = Acceptable cancer risk level (1 in 100,000) (unitless)
- ABW = Average body weight over the exposure duration (70 kg)
- AT = Averaging time (75 years)
- UCF = Unit conversion factor (1,000,000 mg/kg)
- CPF = Carcinogenic Potency Factor as specified in WAC 173-340-708(8) (kg-day/mg)
- SIR = Soil ingestion rate (50 mg/day)
- AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
- ED = Exposure duration (20 years)
- EF = Exposure frequency (0.4) (unitless)

(III) **Petroleum mixtures.** For noncarcinogenic effects of petroleum mixtures, a total petroleum hydrocarbon cleanup level shall be calculated taking into account the additive effects of the petroleum fractions and volatile organic compounds present in the petroleum mixture. Equation 745-3 shall be used for this calculation. This equation takes into account concurrent exposure due to ingestion and dermal contact with petroleum contaminated soils. Cleanup levels for other noncarcinogens and known or suspected carcinogens within the petroleum mixture shall be calculated using Equations 745-4 and 745-5. See Table 830-1 for the analyses required for various petroleum products to use this method.

[Equation 745-3]

$$C_{soil} = \frac{HI \times ABW \times AT}{EF \times ED \left[\left(\frac{SIR \times AB1}{10^6 mg/kg} \sum_{i=1}^{n} \frac{F(i)}{RfDo(i)} \right) + \left(\frac{SA \times AF}{10^6 mg/kg} \sum_{i=1}^{n} \frac{F(i) \times ABS(i)}{RfDd(i)} \right) \right]}$$

Where:

- C_{soil} = TPH soil cleanup level (mg/kg)
- HI = Hazard index (1) (unitless)
- ABW = Average body weight over the exposure duration (70 kg)
- AT = Averaging time (20 years)
- EF = Exposure frequency (0.7) (unitless)
- ED = Exposure duration (20 years)
- SIR = Soil ingestion rate (50 mg/day)
- AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
- F(i) = Fraction (by weight) of petroleum component (i) (unitless)
- SA = Dermal surface area (2,500 cm^2)
- AF = Adherence factor (0.2 mg/cm^2-day)
- ABS = Dermal absorption fraction for petroleum component (i) (unitless). May use chemical-specific values or the following defaults:
  - 0.0005 for volatile petroleum components with vapor press > = benzene
  - 0.03 for volatile petroleum components with vapor press < benzene
  - 0.1 for other petroleum components
- RfDo(i) = Oral reference dose of petroleum component (i) as defined in WAC 173-340-708(7) (mg/kg-day)
- RfDd(i) = Dermal reference dose for petroleum component (i) (mg/kg-day) derived by RfDo x GI
- GI = Gastrointestinal absorption conversion factor (unitless). May use chemical-specific values or the following defaults:

- 0.8 for volatile petroleum components
- 0.5 for other petroleum components

n = The number of petroleum components (petroleum fractions plus volatile organic compounds with an RfD) present in the petroleum mixture. (See Table 830-1.)

(C) **Soil vapors.** The soil to vapor pathway shall be evaluated for volatile organic compounds whenever any of the following conditions exist:

(I) For gasoline range organics, whenever the total petroleum hydrocarbon (TPH) concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(6) using the default assumptions;

(II) For diesel range organics, whenever the total petroleum hydrocarbon (TPH) concentration is greater than 10,000 mg/kg;

(III) For other volatile organic compounds, including petroleum components, whenever the concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(4).

See subsection (5)(c)(iv)(B) of this section for methods that may be used to evaluate the soil to vapor pathway.

(c) **Modified Method C soil cleanup levels.**

(i) **General.** Modified Method C soil cleanup levels are standard Method C soil cleanup levels modified with chemical-specific or site-specific data. When making these adjustments, the resultant cleanup levels shall meet applicable state and federal laws, meet health risk levels for standard Method C soil cleanup levels, and be demonstrated to be environmentally protective using the procedures specified in WAC 173-340-7490 through 173-340-7494. Changes to exposure assumptions must comply with WAC 173-340-708(10).

(ii) **Allowable modifications.** The following modifications may be made to the default assumptions in the standard Method C equations to derive modified Method C soil cleanup levels:

(A) For the protection of ground water see WAC 173-340-747;

(B) For soil ingestion, the gastrointestinal absorption fraction may be modified if the requirements of WAC 173-340-702 (14), (15), (16), and 173-340-708(10) are met;

(C) For dermal contact, the adherence factor, dermal absorption fraction and gastrointestinal absorption conversion factor may be modified if the requirements of WAC 173-340-702 (14), (15), (16), and 173-340-708(10) are met;

(D) Toxicity equivalent factors, as described in WAC 173-340-708(8), may be used for assessing the potential carcinogenic risk of mixtures of chlorinated dibenzo-p-dioxins, chlorinated dibenzofurans and polycyclic aromatic hydrocarbons;

(E) The reference dose and cancer potency factor may be modified if the requirements in WAC 173-340-708 (7) and (8) are met; and

(F) Modifications incorporating new science as provided for in WAC 173-340-702 (14), (15) and (16).

(iii) **Dermal contact.** For hazardous substances other than petroleum mixtures, dermal contact with the soil shall be evaluated whenever the proposed changes to Equations 745-1 and 745-2 would result in a significantly higher soil cleanup level than would be calculated without the proposed changes. When conducting this evaluation, the following equations and default assumptions shall be used:

(A) For noncarcinogens use Equation 745-4. This equation takes into account concurrent exposure due to ingestion and dermal contact with soil.

[Equation 745-4]

$$C_{soil} = \frac{HQ \times ABW \times AT}{EF \times ED \left[\left(\frac{1}{RfDo} \times \frac{SIR \times AB1}{10^6 mg/kg} \right) + \left(\frac{1}{RfDd} \times \frac{SA \times AF \times ABS}{10^6 mg/kg} \right) \right]}$$

Where:

C_{soil} = Soil cleanup level (mg/kg)
HQ = Hazard quotient (unitless)
ABW = Average body weight over the exposure duration (70 kg)
AT = Averaging time (20 years)
EF = Exposure frequency (0.7) (unitless)
ED = Exposure duration (20 years)
SIR = Soil ingestion rate (50 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)
SA = Dermal surface area (2,500 mg/cm^2)
AF = Adherence factor (0.2 mg/cm^2-day)
ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:
- 0.01 for inorganic hazardous substances
- 0.0005 for volatile organic compounds with vapor press >= benzene
- 0.03 for volatile organic compounds with vapor press < benzene
- 0.1 for other organic hazardous substances

RfDo = Oral reference dose as defined in WAC 173-340-708(7) (mg/kg-day)
RfDd = Dermal reference dose (mg/kg-day) derived by RfDo x GI
GI = Gastrointestinal absorption conversion factor (unitless). May use chemical-specific values or the following defaults:
- 0.2 for inorganic hazardous substances
- 0.8 for volatile organic compounds
- 0.5 for other organic hazardous substances

(B) For carcinogens use Equation 745-5. This equation takes into account concurrent exposure due to ingestion and dermal contact with soil.

[Equation 745-5]

$$C_{soil} = \frac{RISK \times ABW \times AT}{EF \times ED \left[\left(\frac{SIR \times AB1 \times CPFo}{10^6 mg/kg} \right) + \left(\frac{SA \times AF \times ABS \times CPFd}{10^6 mg/kg} \right) \right]}$$

Where:

C_{soil} = Soil cleanup level (mg/kg)
RISK = Acceptable cancer risk (1 in 100,000) (unitless)
ABW = Average body weight over the exposure duration (70 kg)
AT = Averaging time (75 years)
EF = Exposure frequency (0.7) (unitless)
ED = Exposure duration (20 years)
SIR = Soil ingestion rate (50 mg/day)
AB1 = Gastrointestinal absorption fraction (1.0) (unitless)

CPFo = Oral cancer potency factor as defined in WAC 173-340-708(8) (kg-day/mg)
CPFd = Dermal cancer potency factor (kg-day/mg) derived by CPFo/GI
GI = Gastrointestinal absorption conversion factor (unitless). May use chemical-specific values or the following defaults:
- 0.2 for inorganic hazardous substances
- 0.8 for volatile organic compounds
- 0.5 for other organic hazardous substances

SA = Dermal surface area (2,500 cm^2)
AF = Adherence factor (0.2 mg/cm^2-day)
ABS = Dermal absorption fraction (unitless). May use chemical-specific values or the following defaults:
- 0.01 for inorganic hazardous substances
- 0.0005 for volatile organic compounds with vapor press >= benzene
- 0.03 for volatile organic compounds substances with vapor press < benzene
- 0.1 for other organic hazardous substances

(C) Modifications may be made to Equations 745-4 and 745-5 as provided for in subsection (5)(c)(ii) of this section.

(iv) **Soil vapors.**

(A) **Applicability.** The soil to vapor pathway shall be evaluated for volatile organic compounds whenever any of the following conditions exist:

(I) For other than petroleum hydrocarbon mixtures, the proposed changes to the standard Method C equations (Equations 745-1 and 745-2) or default values would result in a significantly higher soil cleanup level than would be calculated without the proposed changes;

(II) For petroleum hydrocarbon mixtures, the proposed changes to the standard Method C equations (Equations 745-3, 745-4 and 745-5) or default values would result in a significantly higher soil cleanup level than would be calculated without the proposed changes;

(III) For gasoline range organics, whenever the total petroleum hydrocarbon (TPH) concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(6) using the default assumptions;

(IV) For diesel range organics, whenever the total petroleum hydrocarbon (TPH) concentration is greater than 10,000 mg/kg;

(V) For other volatile organic compounds, including petroleum components, whenever the concentration is significantly higher than a concentration derived for protection of ground water for drinking water beneficial use under WAC 173-340-747(4).

(B) **Evaluation methods.** Soil cleanup levels that are protective of the indoor and ambient air shall be determined on a site-specific basis. Soil cleanup levels may be evaluated as being protective of air pathways using any of the following methods:

(I) Measurements of the soil vapor concentrations, using methods approved by the department, demonstrating vapors in the soil would not exceed air cleanup levels established under WAC 173-340-750.

(II) Measurements of ambient air concentrations and/or indoor air vapor concentrations throughout buildings, using methods approved by the department, demonstrating air does not exceed cleanup levels established under WAC 173-340-750. Such measurements must be representative of current and future site conditions when vapors are likely to enter and accumulate in structures. Measurement of ambient air may be excluded if it can be shown that indoor air is the most protective point of exposure.

(III) Use of modeling methods approved by the department to demonstrate the air cleanup standards established under WAC 173-340-750 will not be exceeded. When this method is used, the department may require soil vapor and/or air monitoring to be conducted to verify the calculations and compliance with air cleanup standards.

(IV) Other methods as approved by the department demonstrating the air cleanup standards established under WAC 173-340-750 will not be exceeded.

(d) **Using modified Method C to evaluate industrial soil remediation levels.** In addition to the adjustments allowed under subsection (5)(c) of this section, other adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357, and 173-340-708 (3)(d) and (10)(b).

(6) **Adjustments to industrial soil cleanup levels.**

(a) **Total site risk adjustments.** Soil cleanup levels for individual hazardous substances developed in accordance with subsection (5) of this section, including cleanup levels based on state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with the procedures specified in WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(b) **Adjustments to applicable state and federal laws.** Where a cleanup level developed under subsection (3) or (5) of this section is based on an applicable state or federal law and the level of risk upon which the standard is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level shall be adjusted downward so that total excess cancer risk does not exceed one in one hundred thousand (1×10^{-5}) and the hazard index does not exceed one (1) at the site.

(c) **Natural background and analytical considerations.** Cleanup levels determined under subsection (3) or (5) of this section, including cleanup levels adjusted under subsection (6)(a) and (b) of this section, shall not be set at levels below the practical quantitation limit or natural background concentration, whichever is higher. See WAC 173-340-707 and 173-340-709 for additional requirements pertaining to practical quantitation limits and natural background.

(7) **Point of compliance.** The point of compliance for industrial property soil cleanup levels shall be established in accordance with WAC 173-340-740(6).

(8) **Compliance monitoring.** Compliance monitoring and data analysis and evaluation for industrial property soil cleanup levels shall be performed in accordance with WAC 173-340-410 and 173-340-740(7).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-745, filed 2/12/01, effective 8/15/01; 96-04-010 (Order 94-37), § 173-340-745, filed 1/26/96, effective 2/26/96; 91-04-019, § 173-340-745, filed 1/28/91, effective 2/28/91.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-747 Deriving soil concentrations for ground water protection. (1) **Purpose.** The purpose of this section is to establish soil concentrations that will not cause contamination of ground water at levels that exceed the ground water cleanup levels established under WAC 173-340-720. Soil concentrations established under this section are used to establish either Method B soil cleanup levels (see WAC 173-340-740 (3)(b)(iii)(A) or Method C soil cleanup levels (see WAC 173-340-745 (5)(b)(iii)(A).

For the purposes of this section, "soil concentration" means the concentration in the soil that will not cause an exceedance of the ground water cleanup level established under WAC 173-340-720.

(2) **General requirements.** The soil concentration established under this section for each hazardous substance shall meet the following two criteria:

(a) The soil concentration shall not cause an exceedance of the ground water cleanup level established under WAC 173-340-720. To determine if this criterion is met, one of the methodologies specified in subsections (4) through (9) of this section shall be used; and

(b) To ensure that the criterion in (a) of this subsection is met, the soil concentration shall not result in the accumulation of nonaqueous phase liquid on or in ground water. To determine if this criterion is met, one of the methodologies specified in subsection (10) of this section shall be used.

(3) **Overview of methods.** This subsection provides an overview of the methods specified in subsections (4) through (10) of this section for deriving soil concentrations that meet the criteria specified in subsection (2) of this section. Certain methods are tailored for particular types of hazardous substances or sites. Certain methods are more complex than others and certain methods require the use of site-specific data. The specific requirements for deriving a soil concentration under a particular method may also depend on the hazardous substance.

(a) **Fixed parameter three-phase partitioning model.** The three-phase partitioning model with fixed input parameters may be used to establish a soil concentration for any hazardous substance. Site-specific data are not required for use of this model. See subsection (4) of this section.

(b) **Variable parameter three-phase partitioning model.** The three-phase partitioning model with variable input parameters may be used to establish a soil concentration for any hazardous substance. Site-specific data are required for use of this model. See subsection (5) of this section.

(c) **Four-phase partitioning model.** The four-phase partitioning model may be used to derive soil concentrations for any site where hazardous substances are present in the soil as a nonaqueous phase liquid (NAPL). The department expects that this model will be used at sites contaminated with petroleum hydrocarbons. Site-specific data are required for use of this model. See subsection (6) of this section.

(d) **Leaching tests.** Leaching tests may be used to establish soil concentrations for certain metals. Leaching tests may also be used to establish soil concentrations for other hazardous substances, including petroleum hydrocarbons, provided sufficient information is available to demonstrate that the leaching test can accurately predict ground water impacts. Testing of soil samples from the site is required for use of this method. See subsection (7) of this section.

(e) **Alternative fate and transport models.** Fate and transport models other than those specified in subsections (4) through (6) of this section may be used to establish a soil concentration for any hazardous substance. Site-specific data are required for use of such models. See subsection (8) of this section.

(f) **Empirical demonstration.** An empirical demonstration may be used to show that measured soil concentrations will not cause an exceedance of the applicable ground water cleanup levels established under WAC 173-340-720. This empirical demonstration may be used for any hazardous substance. Site-specific data (e.g., ground water samples and soil samples) are required under this method. If the required demonstrations cannot be made, then a protective soil concentration shall be established under one of the methods specified in subsections (4) through (8) of this section. See subsection (9) of this section.

(g) **Residual saturation.** To ensure that the soil concentration established under one of the methods specified in subsections (4) through (9) of this section will not cause an exceedance of the ground water cleanup level established under WAC 173-340-720, the soil concentration must not result in the accumulation of nonaqueous phase liquid (NAPL) on or in ground water. The methodologies and procedures specified in subsection (10) of this section shall be used to determine if this criterion is met.

(4) **Fixed parameter three-phase partitioning model.**

(a) **Overview.** This subsection specifies the procedures and requirements for establishing soil concentrations through the use of the fixed parameter three-phase partitioning model. The model may be used to establish soil concentrations for any hazardous substance. The model may be used to calculate both unsaturated and saturated zone soil concentrations.

This method provides default or fixed input parameters for the three-phase partitioning model that are intended to be protective under most circumstances and conditions; site-specific measurements are not required. In some cases it may be appropriate to use site-specific measurements for the input parameters. Subsection (5) of this section specifies the procedures and requirements to establish site-specific input parameters for use in the three-phase partitioning model.

(b) **Description of the model.** The three-phase partitioning model is described by the following equation:

[Equation 747-1]

$$C_s = C_w(UCF)DF\left[K_d + \frac{(\theta_w + \theta_a H_{cc})}{\rho_b}\right]$$

Where:

C_s = Soil concentration (mg/kg)

C_w = Ground water cleanup level established under WAC 173-340-720 (ug/l)

UCF = Unit conversion factor (1mg/1,000 ug)

DF = Dilution factor (dimensionless: 20 for unsaturated zone soil; see (e) of this subsection for saturated zone soil)

K_d = Distribution coefficient (L/kg; see (c) of this subsection)

θ_w = Water-filled soil porosity (ml water/ml soil: 0.3 for unsaturated zone soil; see (e) of this subsection for saturated zone soil)

θ_a = Air-filled soil porosity (ml air/ml soil: 0.13 for unsaturated zone soil; see (e) of this subsection for saturated zone soil)

H_{cc} = Henry's law constant (dimensionless; see (d) of this subsection)

ρ_b = Dry soil bulk density (1.5 kg/L)

(c) **Distribution coefficient (K_d).** The default K_d values for organics and metals used in Equation 747-1 are as follows:

(i) **Organics.** For organic hazardous substances, the K_d value shall be derived using Equation 747-2. The K_{oc} (soil organic carbon-water partition coefficient) parameter specified in Equation 747-2 shall be derived as follows:

(A) **Nonionic organics.** For individual nonionic hydrophobic organic hazardous substances (e.g., benzene and naphthalene), the K_{oc} values in Table 747-1 shall be used. For hazardous substances not listed in Table 747-1, K_d values may be developed as provided in subsection (5) of this section (variable three-phase partitioning model).

(B) **Ionizing organics.** For ionizing organic hazardous substances (e.g., pentachlorophenol and benzoic acid), the K_{oc} values in Table 747-2 shall be used. Table 747-2 provides K_{oc} values for three different pHs. To select the appropriate K_{oc} value, the soil pH must be measured. The K_{oc} value for the corresponding soil pH shall be used. If the soil pH falls between the pH values provided, an appropriate K_{oc} value shall be selected by interpolation between the listed K_{oc} values.

[Equation 747-2]

$K_d = K_{oc} \times f_{oc}$

Where:

K_d = Distribution coefficient (L/kg)

K_{oc} = Soil organic carbon-water partitioning coefficient (ml/g). See (c)(i) of this subsection.

f_{oc} = Soil fraction of organic carbon (0.1% or 0.001 g/g)

(ii) **Metals.** For metals, the K_d values in Table 747-3 shall be used. For metals not listed in Table 747-3, K_d values may be developed as provided in subsection (5) of this section (variable three-phase partitioning model).

(d) **Henry's law constant.** For petroleum fractions, the values for Henry's law constant in Table 747-4 shall be used in Equation 747-1. For individual organic hazardous substances, the value shall be based on values in the scientific literature. For all metals present as inorganic compounds except mercury, zero shall be used. For mercury, either 0.47 or a value derived from the scientific literature shall be used. Derivation of Henry's law constant from the scientific literature shall comply with WAC 173-340-702 (14), (15) and (16).

(e) **Saturated zone soil concentrations.** Equation 747-1 may also be used to derive concentrations for soil that is located at or below the ground water table (the saturated zone). The following input parameters shall be changed if Equation 747-1 is used to derive saturated zone soil concentrations:

(i) The dilution factor shall be changed from 20 to 1;

(ii) The water-filled soil porosity value shall be changed from 0.3 ml water/ml soil to 0.43 ml water/ml soil; and

(iii) The air-filled soil porosity value shall be changed from 0.13 ml air/ml soil to zero.

(5) **Variable parameter three-phase partitioning model.**

(a) **Overview.** This section specifies the procedures and requirements to derive site-specific input parameters for use in the three-phase partitioning model. This method may be used to establish soil concentrations for any hazardous substance. This method may be used to calculate both unsaturated and saturated zone soil concentrations.

This method allows for the substitution of site-specific values for the default values in Equation 747-1 for one or more of the following five input parameters: Distribution coefficient, soil bulk density, soil volumetric water content, soil air content, and dilution factor. The methods that may be used and the requirements that shall be met to derive site-specific values for each of the five input parameters are specified in (b) through (f) of this subsection.

(b) **Methods for deriving a distribution coefficient (K_d).** To derive a site-specific distribution coefficient, one of the following methods shall be used:

(i) **Deriving K_d from soil fraction of organic carbon (foc) measurements.** Site-specific measurements of soil organic carbon may be used to derive distribution coefficients for nonionic hydrophobic organics using Equation 747-2. Soil organic carbon measurements shall be based on uncontaminated soil below the root zone (i.e., soil greater than one meter in depth) that is representative of site conditions or in areas through which contaminants are likely to migrate.

The laboratory protocols for measuring soil organic carbon in the Puget Sound Estuary Program (March, 1986) may be used. Other methods may also be used if approved by the department. All laboratory measurements of soil organic carbon shall be based on methods that do not include inorganic carbon in the measurements.

(ii) **Deriving K_d from site data.** Site-specific measurements of the hazardous substance concentrations in the soil and the soil pore water or ground water may be used, subject to department approval, to derive a distribution coefficient. Distribution coefficients that have been derived from site data shall be based on measurements of soil and ground water hazardous substance concentrations from the same depth and location. Soil and ground water samples that have hazardous substances present as a nonaqueous phase liquid (NAPL)

shall not be used to derive a distribution coefficient and measures shall be taken to minimize biodegradation and volatilization during sampling, transport and analysis of these samples.

(iii) **Deriving K_d from batch tests.** A site-specific distribution coefficient may be derived by using batch equilibrium tests, subject to department approval, to measure hazardous substance adsorption and desorption. The results from the batch test may be used to derive K_d from the sorption/desorption relationship between hazardous substance concentrations in the soil and water. Samples that have hazardous substances present as a nonaqueous phase liquid (NAPL) shall not be used to derive a distribution coefficient and measures shall be taken to minimize biodegradation and volatilization during testing.

(iv) **Deriving K_d from the scientific literature.** The scientific literature may be used to derive a site-specific distribution coefficient (K_d) for any hazardous substance, provided the requirements in WAC 173-340-702 (14), (15) and (16) are met.

(c) **Deriving soil bulk density.** ASTM Method 2049 or other methods approved by the department may be used to derive soil bulk density values.

(d) **Deriving soil volumetric water content using laboratory methods.** ASTM Method 2216 or other methods approved by the department may be used to derive soil volumetric water content values.

(e) **Estimating soil air content.** An estimate of soil air content may be determined by calculating soil porosity and subtracting the volumetric water content.

(f) **Deriving a dilution factor from site-specific estimates of infiltration and ground water flow volume.** Site-specific estimates of infiltration and ground water flow volume may be used in the following equation to derive a site-specific dilution factor:

[Equation 747-3]

$$DF = (Q_p + Q_a)/Q_p$$

Where:

- DF = Dilution factor (dimensionless)
- Q_p = Volume of water infiltrating (m^3/yr)
- Q_a = Ground water flow (m^3/yr)

(i) **Calculating ground water flow volume.** The following equation shall be used under this method to calculate the volume of ground water flow (Q_a):

[Equation 747-4]

$$Q_a = K \times A \times I$$

Where:

- Q_a = Ground water flow volume (m^3/year)
- K = Hydraulic conductivity (m/year). Site-specific measurements shall be used to derive this parameter.
- A = Aquifer mixing zone (m^2). The aquifer mixing zone thickness shall not exceed 5 meters in depth and be equal to a unit width of 1 meter, unless it can be demonstrated empirically that the mixing zone thickness exceeds 5 meters.
- I = Gradient (m/m). Site-specific measurements shall be used to derive this parameter.

(A) Equation 747-4 assumes the ground water concentrations of hazardous substances of concern upgradient of the site are not detectable. If this assumption is not true, the dilution factor may need to be adjusted downward in proportion to the upgradient concentration.

(B) Direct measurement of the flow velocity of ground water using methods approved by the department may be used as a substitute for measuring the ground water hydraulic conductivity and gradient.

(ii) **Calculating or estimating infiltration.** The following equation shall be used under this method to calculate the volume of water infiltrating (Q_p):

[Equation 747-5]

$$Q_p = L \times W \times Inf$$

Where:

- Q_p = Volume of water infiltrating (m^3/year)
- L = Estimated length of contaminant source area parallel to ground water flow (m)
- W = Unit width of contaminant source area (1 meter)
- Inf = Infiltration (m/year)

(A) If a default annual infiltration value (Inf) is used, the value shall meet the following requirements. For sites west of the Cascade Mountains, the default annual infiltration value shall be 70 percent of the average annual precipitation amount. For sites east of the Cascade Mountains, the default annual infiltration value shall be 25 percent of the average annual precipitation amount.

(B) If a site-specific measurement or estimate of infiltration (Inf) is made, it shall be based on site conditions without surface caps (e.g., pavement) or other structures that would control or impede infiltration. The presence of a cover or cap may be considered when evaluating the protectiveness of a remedy under WAC 173-340-350 through 173-340-360. If a site-specific measurement or estimate of infiltration is made, then it must comply with WAC 173-340-702 (14), (15) and (16).

(6) **Four-phase partitioning model.**

(a) **Overview.** This subsection specifies the procedures and requirements for establishing soil concentrations through the use of the four-phase partitioning model. This model may be used to derive soil concentrations for any site where hazardous substances are present in the soil as a nonaqueous phase liquid (NAPL). The model is described in (c) of this subsection. Instructions on how to use the model to establish protective soil concentrations are provided in (d) of this subsection.

(b) **Restrictions on use of the model for alcohol enhanced fuels.** The four-phase partitioning model may be used on a case-by-case basis for soil containing fuels (e.g., gasoline) that have been enhanced with alcohol. If the model is used for alcohol enhanced fuels, then it shall be demonstrated that the effects of cosolvency have been adequately considered and, where necessary, taken into account when applying the model. Use of the model for alcohol enhanced fuels without considering the effects of cosolvency and increased ground water contamination is prohibited.

(c) **Description of the model.** The four-phase partitioning model is based on the following three equations:

(i) **Conservation of volume equation.**

[Equation 747-6]

$$n = \theta_w + \theta_a + \theta_{NAPL}$$

Where:

n = Total soil porosity (ml total pore space/ml total soil volume). Use a default value of 0.43 ml/ml or use a value determined from site-specific measurements.

θ_w = Volumetric water content (ml water/ml soil). For unsaturated soil use a default value of 0.3 or a value determined from site-specific measurements. For saturated soil this value is unknown and must be solved for. Volumetric water content equals the total soil porosity minus volume occupied by the NAPL.

θ_a = Volumetric air content (ml air volume/ml total soil volume). For unsaturated soil this value is unknown and must be solved for. Volumetric air content equals the total soil porosity minus the volume occupied by the water and NAPL. For saturated soil this value is zero.

θ_{NAPL} = Volumetric NAPL content (ml NAPL volume/ml total soil volume). For both unsaturated and saturated soil this value is unknown and must be solved for.

(ii) **Four-phase partitioning equation.**

[Equation 747-7]

$$\frac{M^i_T}{m_{soil}} = \frac{x_i S_i}{\rho_b}\left[\theta_w + K^i_{oc} f_{oc} \rho_b + H^i_{cc}\theta_a + \frac{GFW_i}{S_i}\rho_{NAPL}\theta_{NAPL}\right]$$

Where:

M^i_T = Total mass of each component in the system (mg). This value is derived from site-specific measurements.

m_{soil} = Total soil mass (kg).

x_i = Mole fraction (at equilibrium) of each component (dimensionless). This value is unknown and must be solved for.

S_i = Solubility of each component (mg/l). See Table 747-4 for petroleum hydrocarbons; see the scientific literature for other hazardous substances.

P_b = Dry soil bulk density (1.5 kg/l).

K^i_{oc} = Soil organic carbon-water partitioning coefficient for each component (l/kg). See Table 747-4 for petroleum hydrocarbons; see subsection (4)(b) of this section for other hazardous substances.

f_{oc} = Mass fraction of soil natural organic carbon (0.001 g soil organic/g soil).

H^i_{cc} = Henry's law constant for each component (dimensionless). See Table 747-4 for petroleum hydrocarbons; see subsection (4)(c) of this section for other hazardous substances.

GFW_i = Gram formula weight, or molecular weight of each component (mg/mol). See Table 747-4 for petroleum hydrocarbons; see the scientific literature for other hazardous substances.

$\rho NAPL$ = Molar density of the mixture (mol/l). See Equation 747-8.

Component = For petroleum mixtures, this means the petroleum fractions, and organic hazardous substances with a reference dose; for other hazardous substances, this means each organic hazardous substance that is found in the NAPL.

(iii) **Molar density equation.**

[Equation 747-8]

$$\rho_{NAPL} = \frac{\left[\sum x_i GFW_i \Big/ \left(\sum x_i GFW_i/\rho_i\right)\right]}{\sum x_i GFW_i} = \frac{1}{\sum\left(x_i GFW_i/\rho_i\right)}$$

Where:

GFW_i = Gram formula weight, or molecular weight of each component (mg/mol). See Table 747-4 for petroleum hydrocarbons; see the scientific literature for other hazardous substances.

x_i = Mole fraction (at equilibrium) of each component (dimensionless). This value is unknown and must be solved for.

ρ_i = Density of each component (mg/l). See Table 747-4 for petroleum hydrocarbons; see the scientific literature for other hazardous substances.

Component = For petroleum mixtures, this means the petroleum fractions plus organic hazardous substances with a reference dose; for other hazardous substances, this means each organic hazardous substance that is found in the NAPL.

(d) **Instructions for using the model.** This subsection provides instructions for using the four-phase partitioning model to predict ground water concentrations and to establish protective soil concentrations. The model uses an iterative process to simultaneously solve multiple equations for several unknowns (see step 4 for the number of equations). To predict a ground water concentration, the mole fraction of each component (at equilibrium) must be known. The predicted ground water concentration is obtained by multiplying the water solubility of each component by the equilibrated mole fraction (Equation 747-7).

(i) **Step 1: Measure hazardous substance soil concentrations.** Collect and analyze soil samples and, if appropriate, samples of the product released, for each component. For petroleum hydrocarbons, see Table 830-1 for a description of what to analyze for.

(ii) **Step 2: Derive physical/chemical data.** For each of the components, determine the Henry's law constant, water solubility, soil organic carbon-water partitioning coefficient, density and molecular weight values. For petroleum hydrocarbons, see Table 747-4.

(iii) **Step 3: Derive soil parameters.** Derive a value for each of the following soil parameters as follows:

(A) **Soil organic carbon content.** Use the default value (0.001 g soil organic/g soil) or a site-specific value derived under subsection (5)(b)(i) of this section.

(B) **Soil volumetric water content.** Use the default value (0.43 minus the volume of NAPL and air) or a site-specific value derived under subsection (5)(d) of this section.

(C) **Soil volumetric air content.** Use the default value (0.13 ml/ml for unsaturated zone soil; zero for saturated zone soil) or a site-specific value derived under subsection (5)(e) of this section.

(D) **Soil bulk density and porosity.** Use the default values of 1.5 kg/l for soil bulk density and 0.43 for soil porosity or use site-specific values. If a site-specific value for bulk density is used, the method specified in subsection (5)(c) of this subsection shall be used. If a site-specific bulk density value is used, a site-specific porosity value shall also be used. The site-specific soil porosity value may be calculated using a default soil specific gravity of 2.65 g/ml or measuring the soil specific gravity using ASTM Method D 854.

(iv) **Step 4: Predict a soil pore water concentration.** Equation 747-7 shall be used to predict the soil pore water concentration for each component. To do this, multiple versions of Equation 747-7 shall be constructed, one for each of the components using the associated parameter inputs for K_{oc}, H_{cc}, GFW, and S. These equations shall then be combined with Equations 747-6 and 747-8 and the condition that $\Sigma x_i = 1$ and solved simultaneously for the unknowns in the equations (mole fraction of each component (X_i), volumetric NAPL content (θ_{NAPL}), and either the volumetric water content (θ_w) or the volumetric air content (θ_a).

(v) **Step 5: Derive a dilution factor.** Derive a dilution factor using one of the following two methods:

(A) Use the default value of 20 for unsaturated soils and 1 for saturated soils); or

(B) Derive a site-specific value using site-specific estimates of infiltration and ground water flow volume under subsection (5)(f) of this section.

(vi) **Step 6: Calculate a predicted ground water concentration.** Calculate a predicted ground water concentration for each component by dividing the predicted soil pore water concentration for each component by a dilution factor to account for the dilution that occurs once the component enters ground water.

(vii) **Step 7: Establishing protective soil concentrations.**

(A) **Petroleum mixtures.** For petroleum mixtures, compare the predicted ground water concentration for each component and for the total petroleum hydrocarbon mixture (sum of the petroleum components in the NAPL) with the applicable ground water cleanup level established under WAC 173-340-720.

(I) If the predicted ground water concentration for each of the components and for the total petroleum hydrocarbon mixture is less than or equal to the applicable ground water cleanup level, then the soil concentrations measured at the site are protective.

(II) If the condition in (d)(vii)(A)(I) of this subsection is not met, then the soil concentrations measured at the site are not protective. In this situation, the four-phase partitioning model can be used in an iterative process to calculate protective soil concentrations.

(B) **Other mixtures.** For mixtures that do not include petroleum hydrocarbons, compare the predicted ground water concentration for each hazardous substance in the mixture with the applicable ground water cleanup level established under WAC 173-340-720.

(I) If the predicted ground water concentration for each of the hazardous substances in the mixture is less than or equal to the applicable ground water cleanup level, then the soil concentrations measured at the site are protective.

(II) If the condition in (d)(vii)(B)(I) of this subsection is not met, then the soil concentrations measured at the site are not protective. In this situation, the four-phase partitioning model can be used in an iterative process to calculate protective soil concentrations.

(7) **Leaching tests.**

(a) **Overview.** This subsection specifies the procedures and requirements for deriving soil concentrations through the use of leaching tests. Leaching tests may be used to establish soil concentrations for the following specified metals: Arsenic, cadmium, total chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium, and zinc (see (b) and (c) of this subsection). Leaching tests may also be used to establish soil concentrations for other hazardous substances, including petroleum hydrocarbons, provided sufficient information is available to correlate leaching test results with ground water impacts (see (d) of this subsection). Testing of soil samples from the site is required for use of this method.

(b) **Leaching tests for specified metals.** If leaching tests are used to establish soil concentrations for the specified metals, the following two leaching tests may be used:

(i) EPA Method 1312, Synthetic Precipitation Leaching Procedure (SPLP). Fluid #3 (pH = 5.0), representing acid rain in the western United States, shall be used when conducting this test. This test may underestimate ground water impacts when acidic conditions exist due to significant biological degradation or for other reasons. Underestimation of ground water impacts may occur, for example, when soils contaminated with metals are located in wood waste, in municipal solid waste landfills, in high sulfur content mining wastes, or in other situations with a pH <6. Consequently, this test shall not be used in these situations and the TCLP test should be used instead.

(ii) **EPA Method 1311, Toxicity Characteristic Leaching Procedure (TCLP).** Fluid #1 (pH = 4.93), representing organic acids generated by biological degradation processes, shall be used when conducting this test. This test is intended to represent situations where acidic conditions are present due to biological degradation such as in municipal solid waste landfills. Thus, it may underestimate ground water impacts where this is not the case and the metals of interest are more soluble under alkaline conditions. An example of this would be arsenic occurring in alkaline (pH >8) waste or soils. Consequently, this test shall not be used in these situations and the SPLP test should be used instead.

(c) **Criteria for specified metals.** When using either EPA Method 1312 or 1311, the analytical methods used for analysis of the leaching test effluent shall be sufficiently sensitive to quantify hazardous substances at concentrations at the ground water cleanup level established under WAC 173-340-720. For a soil metals concentration derived under (b) of this subsection to be considered protective of ground water, the leaching test effluent concentration shall meet the following criteria:

(i) For cadmium, lead and zinc, the leaching test effluent concentration shall be less than or equal to ten (10) times the

applicable ground water cleanup level established under WAC 173-340-720.

(ii) For arsenic, total chromium, hexavalent chromium, copper, mercury, nickel and selenium, the leaching test effluent concentration shall be less than or equal to the applicable ground water cleanup level established under WAC 173-340-720.

(d) **Leaching tests for other hazardous substances.** Leaching tests using the methods specified in this subsection may also be used for hazardous substances other than the metals specifically identified in this subsection, including petroleum hydrocarbons. Alternative leaching test methods may also be used for any hazardous substance, including the metals specifically identified in this subsection. Use of the leaching tests specified in (b) and (c) of this subsection for other hazardous substances or in a manner not specified in (b) and (c) of this subsection, or use of alternative leaching tests for any hazardous substance, is subject to department approval and the user must demonstrate with site-specific field or laboratory data or other empirical data that the leaching test can accurately predict ground water impacts. The department will use the criteria in WAC 173-340-702 (14), (15) and (16) to evaluate the appropriateness of these alternative methods under WAC 173-340-702 (14), (15) and (16).

(8) **Alternative fate and transport models.**

(a) **Overview.** This subsection specifies the procedures and requirements for establishing soil concentrations through the use of fate and transport models other than those specified in subsections (4) through (6) of this section. These alternative models may be used to establish a soil concentration for any hazardous substance. Site-specific data are required for use of these models.

(b) **Assumptions.** When using alternative models, chemical partitioning and advective flow may be coupled with other processes to predict contaminant fate and transport, provided the following conditions are met:

(i) **Sorption.** Sorption values shall be derived in accordance with either subsection (4)(c) of this section or the methods specified in subsection (5)(b) of this section.

(ii) **Vapor phase partitioning.** If Henry's law constant is used to establish vapor phase partitioning, then the constant shall be derived in accordance with subsection (4)(d) of this section.

(iii) **Natural biodegradation.** Rates of natural biodegradation shall be derived from site-specific measurements.

(iv) **Dispersion.** Estimates of dispersion shall be derived from either site-specific measurements or literature values.

(v) **Decaying source.** Fate and transport algorithms may be used that account for decay over time.

(vi) **Dilution.** Dilution shall be based on site-specific measurements or estimated using a model incorporating site-specific characteristics. If detectable concentrations of hazardous substances are present in upgradient ground water, then the dilution factor may need to be adjusted downward in proportion to the background (upgradient) concentration.

(vii) **Infiltration.** Infiltration shall be derived in accordance with subsection (5)(f)(ii)(A) or (B) of this section.

(c) **Evaluation criteria.** Proposed fate and transport models, input parameters, and assumptions shall comply with WAC 173-340-702 (14), (15) and (16).

(9) **Empirical demonstration.**

(a) **Overview.** This subsection specifies the procedures and requirements for demonstrating empirically that soil concentrations measured at the site will not cause an exceedance of the applicable ground water cleanup levels established under WAC 173-340-720. This empirical demonstration may be used for any hazardous substance. Site-specific data (e.g., ground water and soil samples) are required under this method. If the demonstrations required under (b) of this subsection cannot be made, then a protective soil concentration shall be established under one of the methods specified in subsections (4) through (8) of this section.

(b) **Requirements.** To demonstrate empirically that measured soil concentrations will not cause an exceedance of the applicable ground water cleanup levels established under WAC 173-340-720, the following shall be demonstrated:

(i) The measured ground water concentration is less than or equal to the applicable ground water cleanup level established under WAC 173-340-720; and

(ii) The measured soil concentration will not cause an exceedance of the applicable ground water cleanup level established under WAC 173-340-720 at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions. This demonstration may also include a measurement or calculation of the attenuating capacity of soil between the source of the hazardous substance and the ground water table using site-specific data.

(c) **Evaluation criteria.** Empirical demonstrations shall be based on methods approved by the department. Those methods shall comply with WAC 173-340-702 (14), (15) and (16).

(10) **Residual saturation.**

(a) **Overview.** To ensure the soil concentrations established under one of the methods specified in subsections (4) through (9) of this section will not cause an exceedance of the ground water cleanup level established under WAC 173-340-720, the soil concentrations must not result in the accumulation of nonaqueous phase liquid on or in ground water (see subsection (2)(b) of this section). To determine if this criterion is met, either an empirical demonstration must be made (see (c) of this subsection) or residual saturation screening levels must be established and compared with the soil concentrations established under one of the methods specified in subsections (4) through (9) of this section (see (d) and (e) of this subsection). This subsection applies to any site where hazardous substances are present as a nonaqueous phase liquid (NAPL), including sites contaminated with petroleum hydrocarbons.

(b) **Definition of residual saturation.** When a nonaqueous phase liquid (NAPL) is released to the soil, some of the NAPL will be held in the soil pores or void spaces by capillary force. For the purpose of this subsection, the concentra-

tion of hazardous substances in the soil at equilibrium conditions is called residual saturation. At concentrations above residual saturation, the NAPL will continue to migrate due to gravimetric and capillary forces and may eventually reach the ground water, provided a sufficient volume of NAPL is released.

(c) **Empirical demonstration.** An empirical demonstration may be used to show that soil concentrations measured at the site will not result in the accumulation of nonaqueous phase liquid on or in ground water. An empirical demonstration may be used for any hazardous substance. Site-specific data (e.g., ground water and soil samples) are required under this method. If the demonstrations required under (c)(i) of this subsection cannot be made, then a protective soil concentration shall be established under (d) and (e) of this subsection.

(i) **Requirements.** To demonstrate empirically that measured soil concentrations will not result in the accumulation of nonaqueous phase liquid on or in ground water, the following shall be demonstrated:

(A) Nonaqueous phase liquid has not accumulated on or in ground water; and

(B) The measured soil concentration will not result in nonaqueous phase liquid accumulating on or in ground water at any time in the future. Specifically, it must be demonstrated that a sufficient amount of time has elapsed for migration of hazardous substances from soil into ground water to occur and that the characteristics of the site (e.g., depth to ground water and infiltration) are representative of future site conditions. This demonstration may also include a measurement or calculation of the attenuating capacity of soil between the source of the hazardous substance and the ground water table using site-specific data.

(iii) **Evaluation criteria.** Empirical demonstrations shall be based on methods approved by the department. Those methods shall comply with WAC 173-340-702 (14), (15) and (16).

(d) **Deriving residual saturation screening levels.** Unless an empirical demonstration is made under (c) of this subsection, residual saturation screening levels shall be derived and compared with the soil concentrations derived under the methods specified in subsections (4) through (9) of this subsection to ensure that those soil concentrations will not result in the accumulation of nonaqueous phase liquid on or in ground water. Residual saturation screening levels shall be derived using one of the following methods.

(i) **Default screening levels for petroleum hydrocarbons.** Residual saturation screening levels for petroleum hydrocarbons may be obtained from the values specified in Table 747-5.

(ii) **Site-specific screening levels.** Residual saturation screening levels for petroleum hydrocarbons and other hazardous substances may be derived from site-specific measurements. Site-specific measurements of residual saturation shall be based on methods approved by the department. Laboratory measurements or theoretical estimates (i.e., those that are not based on site-specific measurements) of residual saturation shall be supported and verified by site data. This may include an assessment of ground water monitoring data and soil concentration data with depth and an analysis of the soil's texture (grain size), porosity and volumetric water content.

(e) **Adjustment to the derived soil concentrations.** After residual saturation screening levels have been derived under (d) of this subsection, the screening levels shall be compared with the soil concentrations derived under one of the methods specified in subsections (4) through (9) of this subsection. If the residual saturation screening level is greater than or equal to the soil concentration derived using these methods, then no adjustment for residual saturation is necessary. If the residual saturation screening level is less than the soil concentration derived using these methods, then the soil concentration shall be adjusted downward to the residual saturation screening level.

(11) **Ground water monitoring requirements.** The department may, on a case-by-case basis, require ground water monitoring to confirm that hazardous substance soil concentrations derived under this section meet the criterion specified in subsection (2) of this section.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-747, filed 2/12/01, effective 8/15/01.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-7490 Terrestrial ecological evaluation procedures. (1) **Purpose.**

(a) WAC 173-340-7490 through 173-340-7494 define the goals and procedures the department will use for:

(i) Determining whether a release of hazardous substances to soil may pose a threat to the terrestrial environment;

(ii) Characterizing existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil; and

(iii) Establishing site-specific cleanup standards for the protection of terrestrial plants and animals.

(b) Information collected during a terrestrial ecological evaluation shall also be used in developing and evaluating cleanup action alternatives and in selecting a cleanup action under WAC 173-340-350 through 173-340-390. WAC 173-340-7490 through 173-340-7494 do not necessarily require a cleanup action for terrestrial ecological protection separate from a human health-based cleanup action. 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, as provided in WAC 173-340-350 (7)(c)(iii)(F)(II).

(c) These procedures are not intended to be used to evaluate potential threats to ecological receptors in sediments, surface water, or wetlands. Procedures for sediment evaluations are described in WAC 173-340-760, and for surface water evaluations in WAC 173-340-730. Procedures for wetland evaluations shall be determined by the department on a case-by-case basis.

(2) **Requirements.** In the event of a release of a hazardous substance to the soil at a site, one of the following actions shall be taken:

(a) Document an exclusion from any further terrestrial ecological evaluation using the criteria in WAC 173-340-7491;

(b) Conduct a simplified terrestrial ecological evaluation as set forth in WAC 173-340-7492; or

(c) Conduct a site-specific terrestrial ecological evaluation as set forth in WAC 173-340-7493.

(3) **Goal.** The goal of the terrestrial ecological evaluation process is the protection of terrestrial ecological receptors from exposure to contaminated soil with the potential to cause significant adverse effects. For species protected under the Endangered Species Act or other applicable laws that extend protection to individuals of a species, a significant adverse effect means an impact that would significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering. For all other species, significant adverse effects are effects that impair reproduction, growth or survival.

(a) The simplified terrestrial ecological evaluation process has been developed to be protective of terrestrial ecological receptors at most qualifying sites, while the site-specific terrestrial ecological evaluation process is intended to be highly likely to be protective at any site.

(b) The following policy on terrestrial ecological receptors to be protected applies to all terrestrial ecological evaluations. For land uses other than industrial or commercial, protectiveness is evaluated relative to terrestrial plants, wildlife, and ecologically important functions of soil biota that affect plants or wildlife.

For industrial or commercial properties, current or future potential for exposure to soil contamination need only be evaluated for terrestrial wildlife protection. Plants and soil biota need not be considered unless:

(i) The species is protected under the federal Endangered Species Act; or

(ii) The soil contamination is located on an area of an industrial or commercial property where vegetation must be maintained to comply with local government land use regulations.

(c) For the purposes of this section, "industrial property" means properties meeting the definition in WAC 173-340-200. "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.

(d) Any terrestrial remedy, including exclusions, based at least in part on future land use assumptions shall include a completion date for such future development acceptable to the department.

(4) **Point of compliance.**

(a) **Conditional point of compliance.** For sites with institutional controls to prevent excavation of deeper soil, a conditional point of compliance may be set at the biologically active soil zone. This zone is assumed to extend to a depth of six feet. The department may approve a site-specific depth based on a demonstration that an alternative depth is more appropriate for the site. In making this demonstration, the following shall be considered:

(i) Depth to which soil macro-invertebrates are likely to occur;

(ii) Depth to which soil turnover (bioturbation) is likely to occur due to the activities of soil invertebrates;

(iii) Depth to which animals likely to occur at the site are expected to burrow; and

(iv) Depth to which plant roots are likely to extend.

(b) **Standard point of compliance.** An institutional control is not required for soil contamination that is at least fifteen feet below the ground surface. This represents a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of site development activities, resulting in exposure by ecological receptors.

(5) **Additional measures.** The department may require additional measures to evaluate potential threats to terrestrial ecological receptors notwithstanding the provisions in this and the following sections, when based upon a site-specific review, the department determines that such measures are necessary to protect the environment.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-7490, filed 2/12/01, effective 8/15/01.]

WAC 173-340-7491 Exclusions from a terrestrial ecological evaluation. (1) **Criteria for determining that no further evaluation is required.** No further evaluation is required if the department determines that a site meets any of the criteria in (a) through (d) of this subsection:

(a) All soil contaminated with hazardous substances is, or will be, located below the point of compliance established under WAC 173-340-7490(4). To qualify for this exclusion, an institutional control shall be required by the department under WAC 173-340-440. An institutional control is not required if the contamination is at least fifteen feet below the ground surface (WAC 173-340-7490 (4)(b)). An exclusion based on planned future land use shall include a completion date for such future development that is acceptable to the department.

(b) All soil contaminated with hazardous substances is, or will be, covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed to the soil contamination. To qualify for this exclusion, an institutional control shall be required by the department under WAC 173-340-440. An exclusion based on planned future land use shall include a completion date for such future development that is acceptable to the department;

(c) Where the site conditions are related or connected to undeveloped land in the following manner:

(i) For sites contaminated with hazardous substances other than those specified in (c)(ii) of this subsection, there is less than 1.5 acres of contiguous undeveloped land on the site or within 500 feet of any area of the site; and

(ii) For sites contaminated with any of the following hazardous substances: Chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor or heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene, there is less than 1/4 acre of contiguous undeveloped land on or within 500 feet of any area of the site affected by these hazardous substances. This list does not imply that sampling must be conducted for each

of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site; and

(iii) For the purposes of (c)(i) and (ii) of this subsection, and Table 749-1, "undeveloped land" shall mean 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. "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, sidewalks and other 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.

(d) Concentrations of hazardous substances in soil do not exceed natural background levels, as determined under WAC 173-340-709.

(2) **Procedure for a site that does not qualify for an exclusion.**

(a) Sites that do not qualify for an exclusion under subsection (1) of this section shall conduct a site-specific terrestrial ecological evaluation if any of the following criteria apply:

(i) The site is located on, or directly adjacent to, an area where management or land use plans will maintain or restore native or seminative vegetation (e.g., green-belts, protected wetlands, forestlands, locally designated environmentally sensitive areas, open space areas managed for wildlife, and some parks or outdoor recreation areas. This does not include park areas used for intensive sport activities such as baseball or football).

(ii) The site is used by a threatened or endangered species; a wildlife species classified by the Washington state department of fish and wildlife as a "priority species" or "species of concern" under Title 77 RCW; or a plant species classified by the Washington state department of natural resources natural heritage program as "endangered," "threatened," or "sensitive" under Title 79 RCW. For plants, "used" means that a plant species grows at the site or has been found growing at the site. For animals, "used" means that individuals of a species have been observed to live, feed or breed at the site.

(iii) The site is located on a property that contains at least ten acres of native vegetation within 500 feet of the site, not including vegetation beyond the property boundaries.

(iv) The department determines that the site may present a risk to significant wildlife populations.

(b) If none of the criteria in (a) of this subsection apply to the site, either a simplified terrestrial ecological evaluation described under WAC 173-340-7492 or a site-specific terrestrial ecological evaluation described under WAC 173-340-7493 shall be conducted.

(c) For the purposes of this section, the following definitions shall apply.

(i) "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.

(ii) "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 (e.g., Scotch broom, Himalayan blackberry or knap-weed).

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-7491, filed 2/12/01, effective 8/15/01.]

WAC 173-340-7492 Simplified terrestrial ecological evaluation procedures. (1) **Purpose.**

(a) The simplified terrestrial ecological evaluation process is intended to identify those sites which do not have a substantial potential for posing a threat of significant adverse effects to terrestrial ecological receptors, and thus may be removed from further ecological consideration during the remedial investigation and cleanup process. For remaining sites, the process provides several options, including chemical concentrations that may be used as cleanup levels, and the choice of developing site-specific concentrations using bioassays or conducting a site-specific terrestrial ecological evaluation under WAC 173-340-7493.

(b) The process is structured with an intent to protect terrestrial wildlife at industrial or commercial sites, and terrestrial plants, soil biota and terrestrial wildlife at other sites, as provided under WAC 173-340-7490 (3)(b).

(c) The simplified terrestrial ecological evaluation procedures in subsection (2) of this section are organized to focus upon the extent of exposure, exposure pathways, and particular contaminants as key factors in evaluating ecological risk. The steps need not be followed in order, and any one step may be used to determine that no further evaluation is necessary to conclude that a site does not pose a substantial threat of significant adverse effects to terrestrial ecological receptors.

(d) If none of the simplified terrestrial ecological evaluation screening step conditions are met, the person conducting the evaluation may use the chemical concentration numbers listed in Table 749-2 as cleanup levels, or shall conduct a site-specific terrestrial ecological evaluation under WAC 173-340-7493.

(2) **Process for conducting a simplified terrestrial ecological evaluation.**

(a) Exposure analysis. The evaluation may be ended at a site where:

(i) The total area of soil contamination at the site is not more than 350 square feet; or

(ii) Land use at the site and surrounding area makes substantial wildlife exposure unlikely. Table 749-1 shall be used to make this evaluation.

(b) Pathways analysis. The evaluation may be ended if there are no potential exposure pathways from soil contamination to soil biota, plants or wildlife. For a commercial or

industrial property, only potential exposure pathways to wildlife (e.g., small mammals, birds) need be considered. Only exposure pathways for priority chemicals of ecological concern listed in Table 749-2 at or above the concentrations provided must be considered. Incomplete pathways may be due to the presence of man-made physical barriers, either currently existing or to be placed (within a time frame acceptable to the department) as part of a remedy or land use. To ensure that such man-made barriers are maintained, a restrictive covenant shall be required by the department under WAC 173-340-440 under a consent decree, agreed order or enforcement order, or as a condition to a written opinion regarding the adequacy of an independent remedial action under WAC 173-340-515(3).

(c) Contaminants analysis. The evaluation may be ended if either of the following are true:

(i) No hazardous substance listed in Table 749-2 for which a value is listed is, or will be, present in the soil at a depth not exceeding the point of compliance established under WAC 173-340-7490(4) and at concentrations higher than the values provided in Table 749-2, using the statistical compliance methods described in WAC 173-340-740(7). An institutional control is required if the contamination is within fifteen feet of the ground surface (see WAC 173-340-7490 (4)(b)). If a hazardous substance listed in Table 749-2 does not have a value listed, then the requirements of (c)(ii) of this subsection must be met; or

(ii) No hazardous substance listed in Table 749-2 is, or will be, present in the soil within six feet of the ground surface at concentrations likely to be toxic, or with the potential to bioaccumulate, based on bioassays using methods approved by the department. An institutional control is required if the contaminant is within fifteen feet of the ground surface. If a hazardous substance listed in Table 749-2 does not have a value listed, then this subparagraph applies.

(3) **Institutional controls.** If any of the conditions listed above in subsection (2)(a)(ii) through (c) of this section are used to end the simplified terrestrial ecological evaluation, institutional controls may be needed to ensure that the condition will continue to be met in the future. Cleanup remedies that rely on chemical concentrations for industrial or commercial sites in Table 749-2 shall include appropriate institutional controls to prevent future exposure to plants or soil biota in the event of a change in land use.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-7492, filed 2/12/01, effective 8/15/01.]

WAC 173-340-7493 Site-specific terrestrial ecological evaluation procedures. (1) **Purpose.**

(a) This section sets forth the procedures for conducting a site-specific terrestrial ecological evaluation if any of the conditions specified in WAC 173-340-7491 (2)(a) apply to the site, or if the person conducting the evaluation elects to conduct a site-specific terrestrial ecological evaluation under this section, whether or not a simplified terrestrial ecological evaluation has been conducted under WAC 173-340-7492.

(b) In addition to the purposes specified in WAC 173-340-7490 (1)(a), the site-specific terrestrial ecological evaluation is intended to facilitate selection of a cleanup action by developing information necessary to conduct evaluations of cleanup action alternatives in the feasibility study.

(c) There are two elements in planning a site-specific terrestrial ecological evaluation. Both elements shall be done in consultation with the department and must be approved by the department. The two elements are:

(i) Completing the problem formulation step as required under subsection (2) of this section; and

(ii) Selecting one or more methods under subsection (3) of this section for addressing issues identified in the problem formulation step.

(d) After reviewing information developed in the problem formulation step, the department may at its discretion determine that selection of one or more methods for proceeding with the evaluation is not necessary by making either of the following decisions:

(i) No further site-specific terrestrial ecological evaluation is necessary because the cleanup action plans developed for the protection of human health will eliminate exposure pathways of concern to all of the soil contamination.

(ii) A simplified terrestrial ecological evaluation may be conducted under WAC 173-340-7492 because this evaluation will adequately identify and address any existing or potential threats to ecological receptors.

(2) **Problem formulation step.**

(a) To define the focus of the site-specific terrestrial ecological evaluation, identify issues to be addressed in the evaluation, specifying:

(i) **The chemicals of ecological concern.** The person conducting the evaluation may eliminate hazardous substances from further consideration where the maximum or the upper ninety-five percent confidence limit soil concentration found at the site does not exceed ecological indicator concentrations described in Table 749-3. For industrial or commercial land uses, only the wildlife values need to be considered. Any chemical that exceeds the ecological indicator concentrations shall be included as a chemical of ecological concern in the evaluation unless it can be eliminated based on the factors listed in WAC 173-340-708 (2)(b). *(Caution on the use of ecological indicator concentrations: These numbers are not cleanup levels, and concentrations that exceed the number do not necessarily require remediation.)*

(ii) **Exposure pathways.** Identify any complete potential pathways for exposure of plants or animals to the chemicals of concern. If there are no complete exposure pathways then no further evaluation is necessary. Incomplete pathways may be due to the presence of man-made physical barriers, either currently existing or to be placed (within a time frame acceptable to the department) as part of a remedy or land use.

To ensure that such man-made barriers are maintained, a restrictive covenant shall be required by the department under WAC 173-340-440 under a consent decree, agreed order or enforcement order, or as a condition to a written opinion regarding the adequacy of an independent remedial action under WAC 173-340-515(3).

(iii) **Terrestrial ecological receptors of concern.** Identify current or potential future terrestrial species groups reasonably likely to live or feed at the site. Groupings should represent taxonomically related species with similar expo-

sure characteristics. Examples of potential terrestrial species groups include: Vascular plants, ground-feeding birds, ground-feeding small mammal predators, and herbivorous small mammals.

(A) From these terrestrial species groups, select those groups to be included in the evaluation. If appropriate, individual terrestrial receptor species may also be included. In selecting species groups or individual species, the following shall be considered:

(I) Receptors that may be most at risk for significant adverse effects based on the toxicological characteristics of the chemicals of concern, the sensitivity of the receptor, and on the likely degree of exposure.

(II) Public comments.

(III) Species protected under applicable state or federal laws that may potentially be exposed to soil contaminants at the site.

(IV) Receptors to be considered under different land uses, described under WAC 173-340-7490 (3)(b).

(B) Surrogate species for which greater information is available, or that are more suitable for site-specific studies, may be used in the analysis when appropriate for addressing issues raised in the problem formulation step.

(iv) **Toxicological assessment.** Identify significant adverse effects in the receptors of concern that may result from exposure to the chemicals of concern, based on information from the toxicological literature.

(b) The following is an example of a site-specific issue developed in this step: Is dieldrin contamination a potential threat to reproduction in birds feeding on invertebrates and ingesting soil at the site? If so, what measures will eliminate any significant adverse effects?

(c) If there are identified information needs for remedy selection or remedial design, these should also be developed as issues for the problem formulation process.

(d) The use of assessment and measurement endpoints, as defined in USEPA *Ecological Risk Assessment Guidance for Superfund*, 1997, should be considered to clarify the logical structure of the site-specific terrestrial ecological evaluation under this chapter. Assessment endpoints shall be consistent with the policy objectives described in WAC 173-340-7490 (3)(b).

(3) **Selection of appropriate terrestrial ecological evaluation methods.** If it is determined during the problem formulation step that further evaluation is necessary, the soil concentrations listed in Table 749-3 may be used as the cleanup level at the discretion of the person conducting the evaluation. Alternatively, one or more of the following methods listed in (a) through (g) of this subsection that are relevant to the issues identified in the problem formulation step and that meet the requirements of WAC 173-340-7490 (1)(a) shall be conducted. The alternative methods available for conducting a site-specific terrestrial ecological evaluation include the following:

(a) **Literature survey.** An analysis based on a literature survey shall be conducted in accordance with subsection (4) of this section and may be used for purposes including the following:

(i) Developing a soil concentration for chemicals not listed in Table 749-3.

(ii) Identifying a soil concentration for the protection of plants or soil biota more relevant to site-specific conditions than the value listed in Table 749-3.

(iii) Obtaining a value for any of the wildlife exposure model variables listed in Table 749-5 to calculate a soil concentration for the protection of wildlife more relevant to site-specific conditions than the values listed in Table 749-3.

(b) **Soil bioassays.**

(i) Bioassays may use sensitive surrogate organisms not necessarily found at the site provided that the test adequately addresses the issues raised in the problem formulation step. For issues where existing or potential threats to plant life are a concern, the test described in *Early Seedling Growth Protocol for Soil Toxicity Screening*. Ecology Publication No. 96-324 may be used. For sites where risks to soil biota are a concern, the test described in *Earthworm Bioassay Protocol for Soil Toxicity Screening*. Ecology Publication No. 96-327 may be used. Other bioassay tests approved by the department may also be used.

(ii) Soil concentrations protective of soil biota or plants may also be established with soil bioassays that use species ecologically relevant to the site rather than standard test species. Species that do or could occur at the site are considered ecologically relevant.

(c) **Wildlife exposure model.** Equations and exposure parameters to be used in calculating soil concentrations protective of terrestrial wildlife are provided in Tables 749-4 and 749-5. Changes to this model may be approved by the department under the following conditions:

(i) Alternative values for parameters listed in Table 749-5 may be used if they can be demonstrated to be more relevant to site-specific conditions (for example, the value is based on a chemical form of a hazardous substance actually present at the site). An alternative value obtained from the literature shall be supported by a literature survey conducted in accordance with subsection (4) of this section.

(ii) Receptor species of concern or exposure pathways identified in the problem formulation step may be added to the model if appropriate on a site-specific basis.

(iii) A substitution for one or more of the receptor species listed in Table 749-4 may be made under subsection (7) of this section.

(d) **Biomarkers.** Biomarker methods may be used if the measurements have clear relevance to issues raised in the problem formulation and the approach has a high probability of detecting a significant adverse effect if it is occurring at the site. The person conducting the evaluation may elect to use criteria such as biomarker effects that serve as a sensitive surrogate for significant adverse effects.

(e) **Site-specific field studies.** Site-specific empirical studies that involve hypothesis testing should use a conventional "no difference" null hypothesis (e.g., H_0: Earthworm densities are the same in the contaminated area and the reference (control) area. H_A: Earthworm densities are higher in the reference area than in the contaminated area). In preparing a work plan, consideration shall be given to the adequacy of the proposed study to detect an ongoing adverse effect and this issue shall be addressed in reporting results from the study.

(f) **Weight of evidence.** A weight of evidence approach shall include a balance in the application of literature, field, and laboratory data, recognizing that each has particular strengths and weaknesses. Site-specific data shall be given greater weight than default values or assumptions where appropriate.

(g) **Other methods approved by the department.** This may include a qualitative evaluation if relevant toxicological data are not available and cannot be otherwise developed (e.g., through soil bioassay testing).

(4) **Literature surveys.**

(a) Toxicity reference values or soil concentrations established from the literature shall represent the lowest relevant LOAEL found in the literature. Bioaccumulation factor values shall represent a reasonable maximum value from relevant information found in the literature. In assessing relevance, the following principles shall be considered:

(i) Literature benchmark values should be obtained from studies that have test conditions as similar as possible to site conditions.

(ii) The literature benchmark values or toxicity reference values should correspond to the exposure route being assessed.

(iii) The toxicity reference value or bioaccumulation factor value shall be as appropriate as possible for the receptor being assessed. The toxicity reference value should be based on a significant endpoint, as described in subsection (2) of this section.

(iv) The literature benchmark value or toxicity reference value should preferably be based on chronic exposure.

(v) The literature benchmark value, toxicity reference value, or bioaccumulation factor should preferably correspond to the chemical form being assessed. Exceptions may apply for toxicity reference values where documented biological transformations occur following uptake of the chemical or where chemical transformations are known to occur in the environment under conditions appropriate to the site.

(b) A list of relevant journals and other literature consulted in the survey shall be provided to the department. A table summarizing information from all relevant studies shall be provided to the department in a report, and the studies used to select a proposed value shall be identified. Copies of literature cited in the table that are not in the possession of the department shall be provided with the report. The department may identify relevant articles, books or other documents that shall be included in the survey.

(5) **Uncertainty analysis.** If a site-specific terrestrial ecological evaluation includes an uncertainty analysis, the discussion of uncertainty shall identify and differentiate between uncertainties that can and cannot be quantified, and natural variability. The discussion shall describe the range of potential ecological risks from the hazardous substances present at the site, based on the toxicological characteristics of the hazardous substances present, and evaluate the uncertainty regarding these risks. Potential methods for reducing uncertainty shall also be discussed, such as additional studies or post-remedial monitoring. If multiple lines of independent evidence have been developed, a weight of evidence approach may be used in characterizing uncertainty.

(6) **New scientific information.** The department shall consider proposals for modifications to default values provided in this section based on new scientific information in accordance with WAC 173-340-702 (14), (15) and (16).

(7) **Substitute receptor species.** Substitutions of receptor species and the associated values in the wildlife exposure model described in Table 749-4 may be made subject to the following conditions:

(a) There is scientifically supportable evidence that a receptor identified in Table 749-4 is not characteristic or a reasonable surrogate for a receptor that is characteristic of the ecoregion where the site is located. "Ecoregions" are defined using EPA's *Ecoregions of the Pacific Northwest* Document No. 600/3-86/033 July 1986 by Omernik and Gallant.

(b) The proposed substitute receptor is characteristic of the ecoregion where the site is located and will serve as a surrogate for wildlife species that are, or may become exposed to soil contaminants at the site. The selected surrogate shall be a species that is expected to be vulnerable to the effects of soil contamination relative to the current default species because of high exposure or known sensitivity to hazardous substances found in soil at the site.

(c) Scientific studies concerning the proposed substitute receptor species are available in the literature to select reasonable maximum exposure estimates for variables listed in Table 749-4.

(d) In choosing among potential substitute receptor species that meet the criteria in (b) and (c) of this subsection, preference shall be given to the species most ecologically similar to the default receptor being replaced.

(e) Unless there is clear and convincing evidence that they are not characteristic of the ecoregion where the site is located, the following groups shall be included in the wildlife exposure model: A small mammalian predator on soil-associated invertebrates, a small avian predator on soil-associated invertebrates, and a small mammalian herbivore.

(f) To account for uncertainties in the level of protection provided to substitute receptor species and toxicologically sensitive species, the department may require any of the following:

(i) Use of toxicity reference values based on no observed adverse effects levels.

(ii) Use of uncertainty factors to account for extrapolations between species in toxicity or exposure parameter values; or

(iii) Use of a hazard index approach for multiple contaminants to account for additive toxic effects.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-7493, filed 2/12/01, effective 8/15/01.]

WAC 173-340-7494 Priority contaminants of ecological concern. When the department determines that such measures are necessary to protect the environment, the department may revise the hazardous substances and corresponding concentrations included in Table 749-2, subject to the following:

(1) The data indicate a significant tendency of the hazardous substance to persist, bioaccumulate, or be highly toxic to terrestrial ecological receptors;

(2) The concentrations for hazardous substances listed in Table 749-2 shall be based on protection of wildlife for industrial and commercial land uses, and upon protection of plants and animals for other land uses.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-7494, filed 2/12/01, effective 8/15/01.]

WAC 173-340-750 Cleanup standards to protect air quality. (1) General considerations.

(a) This section applies whenever it is necessary to establish air cleanup standards to determine if air emissions at a site pose a threat to human health or the environment. It applies to ambient (outdoor) air and air within any building, utility vault, manhole or other structure large enough for a person to fit into. This section does not apply to concentrations of hazardous substances in the air originating from an industrial or commercial process or operation or to hazardous substances in the air originating from an off-site source. This section does apply to concentrations of hazardous substances in the air originating from other contaminated media or a remedial action at the site. Air cleanup standards shall be established at the following sites:

(i) Where a nonpotable ground water cleanup level is being established for volatile organic compounds using a site-specific risk assessment under WAC 173-340-720(6).

(ii) Where a soil cleanup level that addresses vapors or dust is being established under WAC 173-340-740 or 173-340-745.

(iii) Where it is necessary to establish air emission limits for a remedial action.

(iv) At other sites as determined by the department.

(b) Cleanup levels to protect air quality shall be based on estimates of the reasonable maximum exposure expected to occur under both current and future site use conditions. The department has determined that residential site use will generally require the most protective air cleanup levels and that exposure to hazardous substances under these conditions represents the reasonable maximum exposure. Air cleanup levels shall use this presumed exposure scenario and be established in accordance with subsection (3) of this section unless the site qualifies for a Method C air cleanup level. If a site qualifies for a Method C air cleanup level, subsection (4) of this section shall be used to establish air cleanup levels.

(c) In the event of a release or potential release of hazardous substances into the air at a site at which this section applies under (a) of this subsection, a cleanup action that complies with this chapter shall be conducted to address all areas of the site where the concentration of the hazardous substances in the air exceeds cleanup levels.

(d) Air cleanup levels shall be established at concentrations that do not directly or indirectly cause violations of ground water, surface water, or soil cleanup standards established under this chapter or applicable state and federal laws. A site that qualifies for a Method C air cleanup level under this section does not necessarily qualify for a Method C cleanup level in other media. Each medium must be evaluated separately using the criteria applicable to that medium.

(e) The department may require more stringent air cleanup standards than required by this section where, based on a site-specific evaluation, the department determines that this is necessary to protect human health and the environment. Any imposition of more stringent requirements under this provision shall comply with WAC 173-340-702 and 173-340-708.

(2) Method A air cleanup levels.

This section does not provide procedures for establishing Method A cleanup levels. Method B or C, as appropriate, shall be used to establish air cleanup levels.

(3) Method B air cleanup levels.

(a) Applicability. Method B air cleanup levels consist of standard and modified cleanup levels as described in this subsection. Either standard or modified Method B air cleanup levels may be used at any site.

(b) Standard Method B air cleanup levels. Standard Method B cleanup levels for air shall be at least as stringent as all of the following:

(i) Applicable state and federal laws. Concentrations established under applicable state and federal laws; and

(ii) Human health protection. For hazardous substances for which sufficiently protective health-based criteria or standards have not been established under applicable state and federal laws, those concentrations which protect human health and the environment as determined by the following methods:

(A) Noncarcinogens. Concentrations that are estimated to result in no acute or chronic toxic effects on human health and are determined using the following equation and standard exposure assumptions:

[Equation 750-1]

$$\text{Air cleanup level } (\text{ug/m}^3) = \frac{\text{RfD} \times \text{ABW} \times \text{UCF} \times \text{HQ} \times \text{AT}}{\text{BR} \times \text{ABS} \times \text{ED} \times \text{EF}}$$

Where:

RfD	=	Reference dose as specified in WAC 173-340-708(7) (mg/kg-day)
ABW	=	Average body weight over the exposure duration (16 kg)
UCF	=	Unit conversion factor (1,000 ug/mg)
BR	=	Breathing rate (10 m^3/day)
ABS	=	Inhalation absorption fraction (1.0) (unitless)
HQ	=	Hazard quotient (1) (unitless)
AT	=	Averaging time (6 years)
ED	=	Exposure duration (6 years)
EF	=	Exposure frequency (1.0) (unitless)

(B) Carcinogens. For known or suspected carcinogens, concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one million (1×10^{-6}) and are determined using the following equation and standard exposure assumptions:

[Equation 750-2]

$$\text{Air cleanup level } (\text{ug/m}^3) = \frac{\text{RISK} \times \text{ABW} \times \text{AT} \times \text{UCF}}{\text{CPF} \times \text{BR} \times \text{ABS} \times \text{ED} \times \text{EF}}$$

Where:

RISK	=	Acceptable cancer risk level (1 in 1,000,000) (unitless)
ABW	=	Average body weight over the exposure duration (70 kg)
AT	=	Averaging time (75 years)
UCF	=	Unit conversion factor (1,000 ug/mg)
CPF	=	Carcinogenic potency factor as specified in WAC 173-340-708(8) (kg-day/mg)
BR	=	Breathing rate (20 m^3/day)
ABS	=	Inhalation absorption fraction (1.0) (unitless)
ED	=	Exposure duration (30 years)
EF	=	Exposure frequency (1.0) (unitless)

(C) Petroleum mixtures. For noncarcinogenic effects of petroleum mixtures, a total petroleum hydrocarbon cleanup level shall be calculated using Equation 750-1 and by taking into account the additive effects of the petroleum fractions and volatile organic compounds present in the petroleum mixture. Cleanup levels for other noncarcinogens and known or suspected carcinogens within the petroleum mixture shall be calculated using Equations 750-1 and 750-2. See Table 830-1 for the analyses required for various petroleum products to use this method.

(iii) Lower explosive limit limitation. Standard Method B air cleanup levels shall not exceed ten percent (10%) of the lower explosive limit for any hazardous substance or mixture of hazardous substances.

(c) Modified Method B air cleanup levels. Modified Method B air cleanup levels are standard Method B air cleanup levels modified with chemical-specific or site-specific data. When making these adjustments, the resultant cleanup levels shall meet applicable state and federal laws, health risk levels and explosive limit limitations required for standard Method B air cleanup levels. Changes to exposure assumptions must comply with WAC 173-340-708(10). The following adjustments may be made to the default assumptions in the standard Method B equations to derive modified Method B cleanup levels:

(i) The inhalation absorption percentage may be modified if the requirements of WAC 173-340-702 (14), (15), (16) and WAC 173-340-708(10) are met;

(ii) Adjustments to the reference dose and cancer potency factor may be made if the requirements in WAC 173-340-708 (7) and (8) are met;

(iii) The toxicity equivalency factor procedures described in WAC 173-340-708(8) may be used for assessing the potential carcinogenic risk of mixtures of chlorinated dibenzo-p-dioxins, chlorinated dibenzofurans and polycyclic aromatic hydrocarbons;

(iv) Modifications incorporating new science as provided for in WAC 173-340-702 (14), (15) and (16); and

(d) Using modified Method B to evaluate air remediation levels. In addition to the adjustments allowed under subsection (3)(c) of this section, adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357 and 173-340-708 (3)(d) and (10)(b).

(4) Method C air cleanup levels.

(a) Applicability. Method C air cleanup levels consist of standard and modified cleanup levels as described in this subsection. Method C air cleanup levels may be approved by the department if the person undertaking the cleanup action can demonstrate that the site qualifies for use of Method C under WAC 173-340-706(1).

(b) Standard Method C air cleanup levels. Standard Method C air cleanup levels for ambient air shall be at least as stringent as all of the following:

(i) Applicable state and federal laws. Concentrations established under applicable state and federal laws;

(ii) Human health protection. For hazardous substances for which sufficiently protective health-based criteria or standards have not been established under applicable state and federal laws, concentrations that protect human health and the environment as determined by the following methods:

(A) Noncarcinogens. Concentrations that are anticipated to result in no significant acute or chronic effects on human health and are estimated in accordance with Equation 750-1 except that the average body weight shall be 70 kg and the estimated breathing rate shall be 20 m^3/day;

(B) Carcinogens. For known or suspected carcinogens, concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to one in one hundred thousand (1×10^{-5}) and are determined in accordance with Equation 750-2.

(C) Petroleum mixtures. Cleanup levels for petroleum mixtures shall be calculated as specified in subsection (3)(b)(ii)(C) of this section, except that the average body weight shall be 70 kg and the estimated breathing rate shall be 20m^3/day.

(iii) Lower explosive limit limitation. Standard Method C air cleanup levels shall not exceed ten percent (10%) of the lower explosive limit for any hazardous substance or mixture of hazardous substances.

(c) Modified Method C air cleanup levels. Modified Method C air cleanup levels are standard Method C air cleanup levels modified with chemical-specific or site-specific data. The same limitations and adjustments specified in subsection (3)(c) of this section apply to modified Method C cleanup levels.

(d) Using modified Method C to evaluate air remediation levels. In addition to the adjustments allowed under subsection (4)(c) of this section, adjustments to the reasonable maximum exposure scenario or default exposure assumptions are allowed when using a quantitative site-specific risk assessment to evaluate the protectiveness of a remedy. See WAC 173-340-355, 173-340-357 and 173-340-708 (3)(d) and (10)(b).

(5) Adjustments to air cleanup levels.

(a) Total site risk adjustments. Air cleanup levels for individual hazardous substances developed in accordance with subsections (3) and (4) of this section, including cleanup levels based on applicable state and federal laws, shall be adjusted downward to take into account exposure to multiple hazardous substances and/or exposure resulting from more than one pathway of exposure. These adjustments need to be made only if, without these adjustments, the hazard index would exceed one (1) or the total excess cancer risk would exceed one in one hundred thousand (1×10^{-5}). These adjustments shall be made in accordance with the procedures in WAC 173-340-708 (5) and (6). In making these adjustments, the hazard index shall not exceed one (1) and the total excess cancer risk shall not exceed one in one hundred thousand (1×10^{-5}).

(b) Adjustments to applicable state and federal laws. Where a cleanup level developed under subsection (3) or (4) of this section is based on an applicable state or federal law and the level of risk upon which the standard is based exceeds an excess cancer risk of one in one hundred thousand (1×10^{-5}) or a hazard index of one (1), the cleanup level must be adjusted downward so that the total excess cancer

risk does not exceed one in one hundred thousand (1×10^{-5}) and the hazard index does not exceed one (1) at the site.

(c) Natural background and PQL considerations. Cleanup levels determined under subsection (3) or (4) of this section, including cleanup levels adjusted under (a) or (b) of this subsection, shall not be set at levels below the practical quantitation limit or natural background, whichever is higher. See WAC 173-340-709 and 173-340-707 for additional requirements pertaining to practical quantitation limits and natural background.

(6) Points of compliance. Cleanup levels established under this section shall be attained in the ambient air throughout the site. For sites determined to be industrial sites under the criteria in WAC 173-340-745, the department may approve a conditional point of compliance not to exceed the property boundary. A conditional point of compliance shall not be approved if use of a conditional point of compliance would pose a threat to human health or the environment.

(7) Compliance monitoring.

(a) Where air cleanup levels have been established at a site, monitoring may be required to be conducted to determine if compliance with the air cleanup levels has been achieved. Sampling and analytical procedures shall be defined in a compliance monitoring plan prepared under WAC 173-340-410. The sample design shall provide data that are representative of the site.

(b) Data analysis and evaluation procedures used to evaluate compliance with air cleanup levels shall be defined in a compliance monitoring plan prepared under WAC 173-340-410.

(c) Averaging times specified in applicable state and federal laws shall be used to demonstrate compliance with those requirements.

(d) When cleanup levels are not based on applicable state and federal laws, the following averaging times shall be used:

(i) Compliance with air cleanup levels for noncarcinogens shall be based on twenty-four-hour time weighted averages except where the cleanup level is based upon an inhalation reference dose which specifies an alternate averaging time;

(ii) Compliance with air cleanup levels for carcinogens shall be based on annual average concentrations.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-750, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-750, filed 1/28/91, effective 2/28/91.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

WAC 173-340-760 Sediment cleanup standards. In addition to complying with the requirements in this chapter, sediment cleanup actions conducted under this chapter must comply with the requirements of chapter 173-204 WAC.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-760, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-760, filed 1/28/91, effective 2/28/91.]

WAC 173-340-800 Property access. (1) Normal entry procedures. 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. The notice 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, sent through the United States Postal Service at least three days before entry; or

(b) Notice to the site owner and operator to the extent known to the department, 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.

(3) Orders and consent decrees. Whenever investigations or remedial actions are conducted under a decree or order, a potentially liable person shall not deny access to 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 warrant 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 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.

(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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-800, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-800, filed 4/3/90, effective 5/4/90.]

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 WAC. Plans prepared 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-810, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-810, filed 4/3/90, effective 5/4/90.]

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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-820, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-820, filed 4/3/90, effective 5/4/90.]

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 subsec-

tion (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.

(a) The methods 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 (2000);

(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;

(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 edition, 1998;

(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;

(vi) Method 6. **Analytical Methods for Petroleum Hydrocarbons,** Ecology publication #ECY 97-602, June 1997; or

(vii) Equivalent methods subject to approval by the department.

(b) The methods used for a particular hazardous substance 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, as described in (a) of this subsection, may be used to determine compliance with WAC 173-340-720.

(d) Surface water. Methods 1, 2, 3, 4 and 5 as described in (a) of this subsection, may be used to determine compliance with WAC 173-340-730.

(e) Soil. Method 1, 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-830, filed 2/12/01, effective 8/15/01; 91-04-019, § 173-340-830, filed 1/28/91, effective 2/28/91; 90-08-086, § 173-340-830, filed 4/3/90, effective 5/4/90.]

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 copies 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 the state of Washington.

(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 as a basis for all elevations.

(f) For planimetric views, show a survey grid based on monuments established in the field and referenced to state plane coordinates. 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 electronic form capable of being transferred into the department's data management system.

(6) 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.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-840, filed 2/12/01, effective 8/15/01; 90-08-086, § 173-340-840, filed 4/3/90, effective 5/4/90.]

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 173-340-900 Tables.

Table 720-1

Method A Cleanup Levels for Ground Water.[a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	5 ug/liter[b]
Benzene	71-43-2	5 ug/liter[c]
Benzo(a)pyrene	50-32-8	0.1 ug/liter[d]
Cadmium	7440-43-9	5 ug/liter[e]
Chromium (Total)	7440-47-3	50 ug/liter[f]
DDT	50-29-3	0.3 ug/liter[g]
1,2 Dichloroethane (EDC)	107-06-2	5 ug/liter[h]
Ethylbenzene	100-41-4	700 ug/liter[i]
Ethylene dibromide (EDB)	106-93-4	0.01 ug/liter[j]
Gross Alpha Particle Activity		15 pCi/liter[k]
Gross Beta Particle Activity		4 mrem/yr[l]
Lead	7439-92-1	15 ug/liter[m]
Lindane	58-89-9	0.2 ug/liter[n]
Methylene chloride	75-09-2	5 ug/liter[o]
Mercury	7439-97-6	2 ug/liter[p]
MTBE	1634-04-4	20 ug/liter[q]
Naphthalenes	91-20-3	160 ug/liter[r]
PAHs (carcinogenic)		See benzo(a)pyrene[d]
PCB mixtures		0.1 ug/liter[s]
Radium 226 and 228		5 pCi/liter[t]
Radium 226		3 pCi/liter[u]
Tetrachloroethylene	127-18-4	5 ug/liter[v]
Toluene	108-88-3	1,000 ug/liter[w]
Total Petroleum Hydrocarbons[x]		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
Benzene present in ground water		800 ug/liter
No detectable benzene in ground water		1,000 ug/liter
Diesel Range Organics		500 ug/liter
Heavy Oils		500 ug/liter
Mineral Oil		500 ug/liter
1,1,1 Trichloroethane	71-55-6	200 ug/liter[y]
Trichloroethylene	79-01-6	5 ug/liter[z]
Vinyl chloride	75-01-4	0.2 ug/liter[aa]
Xylenes	1330-20-7	1,000 ug/liter[bb]

Footnotes:

a **Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for drinking water beneficial uses at sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the ground water must be restored to those levels at all sites. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.

b **Arsenic.** Cleanup level based on background concentrations for state of Washington.

c **Benzene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

d **Benzo(a)pyrene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61), adjusted to a 1×10^{-5} risk. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).

e **Cadmium.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.62).

f **Chromium (Total).** Cleanup level based on concentration derived using Equation 720-1 for hexavalent chromium. This is a total value for chromium III and chromium VI. If just chromium III is present at the site, a cleanup level of 100 ug/l may be used (based on WAC 246-290-310 and 40 C.F.R. 141.62).

g **DDT (dichlorodiphenyltrichloroethane).** Cleanup levels based on concentration derived using Equation 720-2.

h **1,2 Dichloroethane (ethylene dichloride or EDC).** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

i **Ethylbenzene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

j **Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit.

k **Gross Alpha Particle Activity, excluding uranium.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).

l **Gross Beta Particle Activity, including gamma activity.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).

m **Lead.** Cleanup level based on applicable state and federal law (40 C.F.R. 141.80).

n **Lindane.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

o **Methylene chloride (dichloromethane).** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

p **Mercury.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.62).

q **Methyl tertiary-butyl ether (MTBE).** Cleanup level based on federal drinking water advisory level (EPA-822-F-97-009, December 1997).

r **Naphthalenes.** Cleanup level based on concentration derived using Equation 720-1. This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.

s **PCB mixtures.** Cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit. This cleanup level is a total value for all PCBs.

t **Radium 226 and 228.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).

u **Radium 226.** Cleanup level based on applicable state law (WAC 246-290-310).

v **Tetrachloroethylene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

w **Toluene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

x **Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of ground water for noncarcinogenic effects during drinking water use. Two cleanup levels are provided. The higher value is based on the assumption that no benzene is present in the ground water sample. If any detectable amount of benzene is present in the ground water sample, then the lower TPH cleanup level must be used. No interpolation between these cleanup levels is allowed. The ground water cleanup level for any carcinogenic components of the petroleum [such as benzene, EDB and EDC] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and MTBE], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on protection from noncarcinogenic effects during drinking water use. The ground water cleanup level for any carcinogenic components of the petroleum [such as benzene and PAHs] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and naphthalenes], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for diesel releases.
- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on protection from noncarcinogenic effects during drinking water use, assuming a product composition similar to diesel fuel. The ground water cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and naphthalenes], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors measured using NWTPH-Dx. The cleanup level is based on protection from noncarcinogenic effects during drinking water use. Sites using this cleanup level must analyze ground water samples for PCBs and meet the PCB cleanup level in this table unless it can be demonstrated that: (1) The release originated from an electrical device manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B (or Method C, if applicable) must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.

y **1,1,1 Trichloroethane.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

z **Trichloroethylene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

aa **Vinyl chloride.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61), adjusted to a 1×10^{-5} risk.

bb **Xylenes.** Cleanup level based on xylene not exceeding the maximum allowed cleanup level in this table for total petroleum hydrocarbons and on prevention of adverse aesthetic characteristics. This is a total value for all xylenes.

Table 740-1

Method A Soil Cleanup Levels for Unrestricted Land Uses.[a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20 mg/kg[b]
Benzene	71-43-2	0.03 mg/kg[c]
Benzo(a)pyrene	50-32-8	0.1 mg/kg[d]
Cadmium	7440-43-9	2 mg/kg[e]
Chromium		
Chromium VI	18540-29-9	19 mg/kg[f1]
Chromium III	16065-83-1	2,000 mg/kg[f2]
DDT	50-29-3	3 mg/kg[g]
Ethylbenzene	100-41-4	6 mg/kg[h]
Ethylene dibromide (EDB)	106-93-4	0.005 mg/kg[i]
Lead	7439-92-1	250 mg/kg[j]
Lindane	58-89-9	0.01 mg/kg[k]
Methylene chloride	75-09-2	0.02 mg/kg[l]
Mercury (inorganic)	7439-97-6	2 mg/kg[m]
MTBE	1634-04-4	0.1 mg/kg[n]
Naphthalenes	91-20-3	5 mg/kg[o]
PAHs (carcinogenic)		See benzo(a)pyrene[d]
PCB Mixtures		1 mg/kg[p]
Tetrachloroethylene	127-18-4	0.05 mg/kg[q]
Toluene	108-88-3	7 mg/kg[r]
Total Petroleum Hydrocarbons[s]		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture		100 mg/kg
All other gasoline mixtures		30 mg/kg
Diesel Range Organics		2,000 mg/kg
Heavy Oils		2,000 mg/kg
Mineral Oil		4,000 mg/kg
1,1,1 Trichloroethane	71-55-6	2 mg/kg[t]
Trichloroethylene	79-01-6	0.03 mg/kg[u]
Xylenes	1330-20-7	9 mg/kg[v]

Footnotes:

a **Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or for sites with relatively few hazardous substances, and the site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or it can be demonstrated using a terrestrial ecological evaluation under WAC 173-340-7492 or 173-340-7493 that the values in this table are ecologically protective for the site. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the soil must be restored to these levels at a site. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.

b **Arsenic.** Cleanup level based on direct contact using Equation 740-2 and protection of ground water for drinking water use using the procedures in WAC 173-340-747(4), adjusted for natural background for soil.

c **Benzene.** Cleanup level based on protection of ground water for drinking water use, using the procedures in WAC 173-340-747 (4) and (6).

d **Benzo(a)pyrene.** Cleanup level based on direct contact using Equation 740-2. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).

e **Cadmium.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

f1 **Chromium VI.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

f2 **Chromium III.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in

WAC 173-340-747(4). Chromium VI must also be tested for and the cleanup level met when present at a site.

g **DDT (dichlorodiphenyltrichloroethane).** Cleanup level based on direct contact using Equation 740-2.

h **Ethylbenzene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

i **Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

j **Lead.** Cleanup level based on preventing unacceptable blood lead levels.

k **Lindane.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit.

l **Methylene chloride (dichloromethane).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

m **Mercury.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

n **Methyl tertiary-butyl ether (MTBE).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

o **Naphthalenes.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.

p **PCB Mixtures.** Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs.

q **Tetrachloroethylene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

r **Toluene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

s **Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of ground water for noncarcinogenic effects during drinking water use using the procedures described in WAC 173-340-747(6). Two cleanup levels are provided. The lower value of 30 mg/kg can be used at any site. When using this lower value, the soil must also be tested for and meet the benzene soil cleanup level. The higher value of 100 mg/kg can only be used if the soil is tested and found to contain no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture. No interpolation between these cleanup levels is allowed. In both cases, the soil cleanup level for any other carcinogenic components of the petroleum [such as EDB and EDC], if present at the site, must also be met. Also, in both cases, soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes, naphthalene, and MTBE], also must be met if these substances are found to exceed ground water cleanup levels at the site. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using method NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on preventing the accumulation of free product on the ground water, as described in WAC 173-340-747(10). The soil cleanup level for any carcinogenic components of the petroleum [such as benzene and PAHs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if these substances are found to exceed the ground water cleanup levels at the site. See Table 830-1 for the minimum testing requirements for diesel releases.
- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on preventing the accumulation of free product on the ground water, as described in WAC 173-340-747(10) and assuming a product composition similar to diesel fuel. The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if found to exceed the ground water cleanup levels at the site. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors, measured using NWTPH-Dx. The cleanup level is based on preventing the accumulation of free product on the ground water, as described in WAC 173-340-747(10). Sites using this cleanup level must also analyze soil samples and meet the soil cleanup level for PCBs, unless it can be demonstrated that: (1) The release originated from an electrical device that was manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.

t **1,1,1 Trichloroethane.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

u **Trichloroethylene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

v **Xylenes.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for all xylenes.

Table 745-1

Method A Soil Cleanup Levels for Industrial Properties.[a]

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20 mg/kg[b]
Benzene	71-43-2	0.03 mg/kg[c]
Benzo(a)pyrene	50-32-8	2 mg/kg[d]
Cadmium	7440-43-9	2 mg/kg[e]
Chromium		
Chromium VI	18540-29-9	19 mg/kg[f1]
Chromium III	16065-83-1	2,000 mg/kg[f2]
DDT	50-29-3	4 mg/kg[g]
Ethylbenzene	100-41-4	6 mg/kg[h]
Ethylene dibromide (EDB)	106-93-4	0.005 mg/kg[i]
Lead	7439-92-1	1,000 mg/kg[j]
Lindane	58-89-9	0.01 mg/kg[k]
Methylene chloride	75-09-2	0.02 mg/kg[l]
Mercury (inorganic)	7439-97-6	2 mg/kg[m]
MTBE	1634-04-4	0.1 mg/kg[n]
Naphthalene	91-20-3	5 mg/kg[o]
PAHs (carcinogenic)		See benzo(a)pyrene
PCB Mixtures		10 mg/kg[p]
Tetrachloroethylene	127-18-4	0.05 mg/kg[q]
Toluene	108-88-3	7 mg/kg[r]
Total Petroleum Hydrocarbons[s]		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture		100 mg/kg
All other gasoline mixtures		30 mg/kg
Diesel Range Organics		2,000 mg/kg
Heavy Oils		2,000 mg/kg
Mineral Oil		4,000 mg/kg
1,1,1 Trichloroethane	71-55-6	2 mg/kg[t]
Trichloroethylene	79-01-6	0.03 mg/kg[u]
Xylenes	1330-20-7	9 mg/kg[v]

Footnotes:

a **Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or for industrial properties with relatively few hazardous substances, and the site qualifies under WAC 173-340-7491 for an exclusion

from conducting a simplified or site-specific terrestrial ecological evaluation, or it can be demonstrated using a terrestrial ecological evaluation under WAC 173-340-7492 or 173-340-7493 that the values in this table are ecologically protective for the site. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the soil must be restored to these levels at a site. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.

b **Arsenic.** Cleanup level based on protection of ground water for drinking water use, using the procedures in WAC 173-340-747(4), adjusted for natural background for soil.

c **Benzene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747 (4) and (6).

d **Benzo(a)pyrene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4). If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).

e **Cadmium.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

f1 **Chromium VI.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

f2 **Chromium III.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4). Chromium VI must also be tested for and the cleanup level met when present at a site.

g **DDT (dichlorodiphenyltrichloroethane).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

h **Ethylbenzene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

i **Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.

j **Lead.** Cleanup level based on direct contact.

k **Lindane.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit.

l **Methylene chloride (dichloromethane).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

m **Mercury.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

n **Methyl tertiary-butyl ether (MTBE).** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

o **Naphthalenes.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.

p **PCB Mixtures.** Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs. This value may be used only if the PCB contaminated soils are capped and the cap maintained as required by 40 C.F.R. 761.61. If this condition cannot be met, the value in Table 740-1 must be used.

q **Tetrachloroethylene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

r **Toluene.** Cleanup level based on protection of ground water for drinking water use, using the procedure described in WAC 173-340-747(4).

s **Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of ground water for noncarcinogenic effects during drinking water use using the procedures described in WAC 173-340-747(6). Two cleanup levels are provided. The lower value of 30 mg/kg can be used at any site. When using this lower value, the soil must also be tested for and meet the benzene soil cleanup level. The higher value of 100 mg/kg can only be used if the soil is tested and found to contain no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture. No interpolation between these cleanup levels is allowed. In both cases, the soil cleanup level for any other carcinogenic components of the petroleum [such as EDB and EDC], if present at the site, must also be met. Also, in both cases, soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes, naphthalene, and MTBE], also must be met if these substances are found to exceed ground water cleanup levels at the site. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using method NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on preventing the accumulation of free product on the ground water, as described in WAC 173-340-747(10). The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, and PAHs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if these substances are found to exceed the ground water cleanup levels at the site. See Table 830-1 for the minimum testing requirements for diesel releases.
- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on preventing the accumulation of free product on the ground water, as described in WAC 173-340-747(10) and assuming a product composition similar to diesel fuel. The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if found to exceed the ground water cleanup levels at the site. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors, measured using NWTPH-Dx. The cleanup level is based on preventing the accumulation of free product on the ground water, as described in WAC 173-340-747(10). Sites using this cleanup level must also analyze soil samples and meet the soil cleanup level for PCBs, unless it can be demonstrated that: (1) The release originated from an electrical device that was manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B or C must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.

t **1,1,1 Trichloroethane.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

u **Trichloroethylene.** Cleanup level based on protection of ground water for drinking water use, using the procedures described in WAC 173-340-747(4).

v **Xylenes.** Cleanup level based on protection of ground water for drinking water use, using the procedure in WAC 173-340-747(4). This is a total value for all xylenes.

Table 747-1
Soil Organic Carbon-Water Partitioning Coefficient (K_{oc})

Values: Nonionizing Organics.

Hazardous Substance	K_{oc} (ml/g)
ACENAPHTHENE	4,898
ALDRIN	48,685
ANTHRACENE	23,493
BENZ(a)ANTHRACENE	357,537
BENZENE	62
BENZO(a)PYRENE	968,774
BIS(2-CHLOROETHYL)ETHER	76
BIS(2-ETHYLHEXYL)PHTHALATE	111,123
BROMOFORM	126

BUTYL BENZYL PHTHALATE	13,746
CARBON TETRACHLORIDE	152
CHLORDANE	51,310
CHLOROBENZENE	224
CHLOROFORM	53
DDD	45,800
DDE	86,405
DDT	677,934
DIBENZO(a,h)ANTHRACENE	1,789,101
1,2-DICHLOROBENZENE (o)	379
1,4-DICHLOROBENZENE (p)	616
DICHLOROETHANE-1,1	53
DICHLOROETHANE-1,2	38
DICHLOROETHYLENE-1,1	65
trans-1,2 DICHLOROETHYLENE	38
DICHLOROPROPANE-1,2	47
DICHLOROPROPENE-1,3	27
DIELDRIN	25,546
DIETHYL PHTHALATE	82
DI-N-BUTYLPHTHALATE	1,567
EDB	66
ENDRIN	10,811
ENDOSULFAN	2,040
ETHYL BENZENE	204
FLUORANTHENE	49,096
FLUORENE	7,707
HEPTACHLOR	9,528
HEXACHLOROBENZENE	80,000
α-HCH (α-BHC)	1,762
β-HCH (β-BHC)	2,139
γ-HCH (LINDANE)	1,352
MTBE	11
METHOXYCHLOR	80,000
METHYL BROMIDE	9
METHYL CHLORIDE	6
METHYLENE CHLORIDE	10
NAPHTHALENE	1,191
NITROBENZENE	119
PCB-Arochlor 1016	107,285
PCB-Arochlor 1260	822,422
PENTACHLOROBENZENE	32,148
PYRENE	67,992
STYRENE	912
1,1,2,2,-TETRACHLOROETHANE	79
TETRACHLOROETHYLENE	265
TOLUENE	140
TOXAPHENE	95,816
1,2,4-TRICHLOROBENZENE	1,659
TRICHLOROETHANE -1,1,1	135
TRICHLOROETHANE-1,1,2	75
TRICHLOROETHYLENE	94
o-XYLENE	241
m-XYLENE	196
p-XYLENE	311

Sources: Except as noted below, the source of the K_{oc} values is the 1996 *EPA Soil Screening Guidance: Technical Background Document.* The values obtained from this document represent the geometric mean of a survey of values published in the scientific literature. Sample populations ranged from 1-65. EDB value from *ATSDR Toxicological Profile* (TP 91/13). MTBE value from *USGS Final Draft Report on Fuel Oxygenates* (March 1996). PCB-Arochlor values from 1994 *EPA Draft Soil Screening Guidance.*

Table 747-2
Predicted Soil Organic Carbon-Water Partitioning Coefficient (K_{oc}) as a Function of pH: Ionizing Organics.

Hazardous Substance	K_{oc} Value (ml/g)		
	pH = 4.9	pH = 6.8	pH = 8.0
Benzoic acid	5.5	0.6	0.5
2-Chlorophenol	398	388	286
2-4-Dichlorophenol	159	147	72
2-4-Dinitrophenol	0.03	0.01	0.01
Pentachlorophenol	9,055	592	410
2,3,4,5-Tetrachlorophenol	17,304	4,742	458
2,3,4,6-Tetrachlorophenol	4,454	280	105
2,4,5-Trichlorophenol	2,385	1,597	298
2,4,6-Trichlorophenol	1,040	381	131

Source: 1996 *EPA Soil Screening Guidance: Technical Background Document.* The predicted K_{oc} values in this table were derived using a relationship from thermodynamic equilibrium considerations to predict the total sorption of an ionizable organic compound from the partitioning of its ionized and neutral forms.

Table 747-3
Metals Distribution Coefficients (K_d).

Hazardous Substance	K_d (L/kg)
Arsenic	29
Cadmium	6.7
Total Chromium	1,000
Chromium VI	19
Copper	22
Mercury	52
Nickel	65
Lead	10,000
Selenium	5
Zinc	62

Source: Multiple sources compiled by the department of ecology.

Table 747-4
Petroleum EC Fraction Physical/Chemical Values.

Fuel Fraction	Equivalent Carbon Number[1]	Water Solubility[2] (mg/L)	Mol. Wt.[3] (g/mol)	Henry's Constant[4] (cc/cc)	GFW[5] (mg/mol)	Density[6] (mg/l)	Soil Organic Carbon-Water Partitioning Coefficient K_{oc}[7] (L/kg)
ALIPHATICS							
EC 5 - 6	5.5	36.0	81.0	33.0	81,000	670,000	800
EC > 6 - 8	7.0	5.4	100.0	50.0	100,000	700,000	3,800
EC > 8 - 10	9.0	0.43	130.0	80.0	130,000	730,000	30,200

Fuel Fraction	Equivalent Carbon Number[1]	Water Solubility[2] (mg/L)	Mol. Wt.[3] (g/mol)	Henry's Constant[4] (cc/cc)	GFW[5] (mg/mol)	Density[6] (mg/l)	Soil Organic Carbon-Water Partitioning Coefficient K_{oc}[7] (L/kg)
EC > 10 - 12	11.0	0.034	160.0	120.0	160,000	750,000	234,000
EC > 12 - 16	14.0	7.6E-04	200.0	520.0	200,000	770,000	5.37E+06
EC > 16 - 21	19.0	1.3E-06	270.0	4,900	270,000	780,000	9.55E+09
EC > 21 - 34	28.0	1.5E-11	400.0	100,000	400,000	790,000	1.07E+10
AROMATICS							
EC > 8 - 10	9.0	65.0	120.0	0.48	120,000	870,000	1,580
EC > 10 - 12	11.0	25.0	130.0	0.14	130,000	900,000	2,510
EC > 12 - 16	14.0	5.8	150.0	0.053	150,000	1,000,000	5,010
EC > 16 - 21	19.0	0.51	190.0	0.013	190,000	1,160,000	15,800
EC > 21 - 34	28.0	6.6E-03	240.0	6.7E-04	240,000	1,300,000	126,000
TPH COMPONENTS							
Benzene	6.5	1,750	78.0	0.228	78,000	876,500	62.0
Toluene	7.6	526.0	92.0	0.272	92,000	866,900	140.0
Ethylbenzene	8.5	169.0	106.0	0.323	106,000	867,000	204.0
Total Xylenes[8] (average of 3)	8.67	171.0	106.0	0.279	106,000	875,170	233.0
n-Hexane[9]	6.0	9.5	86.0	74.0	86,000	659,370	3,410
MTBE[10]		50,000	88.0	0.018	88,000	744,000	10.9
Naphthalenes	11.69	31.0	128.0	0.0198	128,000	1,145,000	1,191

Sources:

1 **Equivalent Carbon Number.** Gustafson, J.B. et al., *Selection of Representative TPH Fractions Based on Fate and Transport Considerations. Total Petroleum Hydrocarbon Criteria Working Group Series*, Volume 3 (1997) [hereinafter *Criteria Working Group*].

2 **Water Solubility.** For aliphatics and aromatics EC groups, *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document.*

3 **Molecular Weight.** *Criteria Working Group.*

4 **Henry's Constant.** For aliphatics and aromatics EC groups, *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document.*

5 **Gram Formula Weight (GFW).** Based on 1000 x Molecular Weight.

6 **Density.** For aliphatics and aromatics EC groups, based on correlation between equivalent carbon number and data on densities of individual hazardous substances provided in *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document.*

7 **Soil Organic Carbon-Water Partitioning Coefficient.** For aliphatics and aromatics EC groups, *Criteria Working Group.* For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document.*

8 **Total Xylenes.** Values for total xylenes are a weighted average of m, o and p xylene based on gasoline composition data from the *Criteria Working Group* (m= 51% of total xylene; o= 28% of total xylene; and p=21% of total xylene).

9 **n-Hexane.** For values other than density, *Criteria Working Group.* For the density value, *Hawley's Condensed Chemical Dictionary,* 11th ed., revised by N. Irving Sax and Richard J. Lewis (1987).

10 **MTBE.** *USGS Final Report on Fuel Oxygenates* (March 1996).

Table 747-5
Residual Saturation Screening Levels for TPH.

Fuel	Screening Level (mg/kg)
Weathered Gasoline	1,000
Middle Distillates (e.g., Diesel No. 2 Fuel Oil)	2,000
Heavy Fuel Oils (e.g., No. 6 Fuel Oil)	2,000
Mineral Oil	4,000

Table 747-5
Residual Saturation Screening Levels for TPH.

Fuel	Screening Level (mg/kg)
Unknown Composition or Type	1,000

Note: The residual saturation screening levels for petroleum hydrocarbons specified in Table 747-5 are based on coarse sand and gravelly soils; however, they may be used for any soil type. Screening levels are based on the presumption that there are no preferential pathways for NAPL to flow downward to ground water. If such pathways exist, more stringent residual saturation screening levels may need to be established.

Table 749-1
Simplified Terrestrial Ecological Evaluation - Exposure Analysis Procedure under WAC 173-340-7492 (2)(a)(ii).[a]

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre). "Undeveloped land" means land that is not covered by existing buildings, roads, paved areas or other barriers that will prevent wildlife from feeding on plants, earthworms, insects or other food in or on the soil.

1) From the table below, find the number of points corresponding to the area and enter this number in the box to the right. ____

Area (acres)	Points	
0.25 or less	4	
0.5	5	
1.0	6	
1.5	7	
2.0	8	
2.5	9	
3.0	10	
3.5	11	
4.0 or more	12	

2) Is this an industrial or commercial property? See WAC 173-340-7490 (3)(c). If yes, enter a score of 3 in the box to the right. If no, enter a score of 1.	
3) Enter a score in the box to the right for the habitat quality of the site, using the rating system shown below[b]. (High = 1, Intermediate = 2, Low = 3)	
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2. See footnote c.	
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.	
6) Add the numbers in the boxes on lines 2 through 5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified terrestrial ecological evaluation may be ended under WAC 173-340-7492 (2)(a)(ii).	

Footnotes:

a It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score (1) for questions 3 and 4.

b Habitat rating system. Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:
Low: Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.
High: Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington department of fish and wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.
Intermediate: Area does not rate as either high or low.

c Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use by mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

Table 749-2
Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure.[a]

Priority contaminant	Soil concentration (mg/kg)	
	Unrestricted land use[b]	Industrial or commercial site
METALS[c]		
Antimony	See note d	See note d
Arsenic III	20 mg/kg	20 mg/kg
Arsenic V	95 mg/kg	260 mg/kg
Barium	1,250 mg/kg	1,320 mg/kg
Beryllium	25 mg/kg	See note d
Cadmium	25 mg/kg	36 mg/kg
Chromium (total)	42 mg/kg	135 mg/kg
Cobalt	See note d	See note d
Copper	100 mg/kg	550 mg/kg
Lead	220 mg/kg	220 mg/kg
Magnesium	See note d	See note d
Manganese	See note d	23,500 mg/kg
Mercury, inorganic	9 mg/kg	9 mg/kg
Mercury, organic	0.7 mg/kg	0.7 mg/kg
Molybdenum	See note d	71 mg/kg
Nickel	100 mg/kg	1,850 mg/kg
Selenium	0.8 mg/kg	0.8 mg/kg
Silver	See note d	See note d
Tin	275 mg/kg	See note d
Vanadium	26 mg/kg	See note d
Zinc	270 mg/kg	570 mg/kg
PESTICIDES		
Aldicarb/aldicarb sulfone (total)	See note d	See note d
Aldrin	0.17 mg/kg	0.17 mg/kg
Benzene hexachloride (including lindane)	10 mg/kg	10 mg/kg
Carbofuran	See note d	See note d
Chlordane	1 mg/kg	7 mg/kg
Chlorpyrifos/chlorpyrifos-methyl (total)	See note d	See note d
DDT/DDD/DDE (total)	1 mg/kg	1 mg/kg
Dieldrin	0.17 mg/kg	0.17 mg/kg
Endosulfan	See note d	See note d
Endrin	0.4 mg/kg	0.4 mg/kg
Heptachlor/heptachlor epoxide (total)	0.6 mg/kg	0.6 mg/kg
Hexachlorobenzene	31 mg/kg	31 mg/kg
Parathion/methyl parathion (total)	See note d	See note d
Pentachlorophenol	11 mg/kg	11 mg/kg
Toxaphene	See note d	See note d
OTHER CHLORINATED ORGANICS		
Chlorinated dibenzofurans (total)	3E-06 mg/kg	3E-06 mg/kg
Dioxins (total)	5E-06 mg/kg	5E-06 mg/kg
Hexachlorophene	See note d	See note d
PCB mixtures (total)	2 mg/kg	2 mg/kg
Pentachlorobenzene	168 mg/kg	See note d
OTHER NONCHLORINATED ORGANICS		
Acenaphthene	See note d	See note d
Benzo(a)pyrene	30 mg/kg	300 mg/kg
Bis (2-ethylhexyl) phthalate	See note d	See note d
Di-n-butyl phthalate	200 mg/kg	See note d
PETROLEUM		
Gasoline Range Organics	200 mg/kg	12,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics	460 mg/kg	15,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

a Caution on misusing these chemical concentration numbers. These values have been developed for use at sites where a site-specific terrestrial ecological evaluation is not required. They are not intended to be protective of terrestrial ecological receptors at every site. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. The table is not intended for purposes such as evaluating sludges or wastes.
This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.

b Applies to any site that does not meet the definition of industrial or commercial.

c For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.

d Safe concentration has not yet been established. See WAC 173-340-7492 (2)(c).

Table 749-3

Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals[a]. For chemicals where a value is not provided, see footnote b.

Note: These values represent soil concentrations that are expected to be protective at any MTCA site and are provided for use in eliminating hazardous substances from further consideration under WAC 173-340-7493 (2)(a)(i). Where these values are exceeded, various options are provided for demonstrating that the hazardous substance does not pose a threat to ecological receptors at a site, or for developing site-specific remedial standards for eliminating threats to ecological receptors. See WAC 173-340-7493 (1)(b)(i), 173-340-7493 (2)(a)(ii) and 173-340-7493(3).

Hazardous Substance[b]	Plants[c]	Soil biota[d]	Wildlife[e]
METALS[f]:			
Aluminum (soluble salts)	50		
Antimony	5		
Arsenic III			7
Arsenic V	10	60	132
Barium	500		102
Beryllium	10		
Boron	0.5		
Bromine	10		
Cadmium	4	20	14
Chromium (total)	42[g]	42[g]	67
Cobalt	20		
Copper	100	50	217
Fluorine	200		
Iodine	4		
Lead	50	500	118
Lithium	35[g]		
Manganese	1,100[g]		1,500
Mercury, inorganic	0.3	0.1	5.5
Mercury, organic			0.4
Molybdenum	2		7
Nickel	30	200	980
Selenium	1	70	0.3
Silver	2		
Technetium	0.2		
Thallium	1		
Tin	50		
Uranium	5		
Vanadium	2		
Zinc	86[g]	200	360
PESTICIDES:			
Aldrin			0.1
Benzene hexachloride (including lindane)			6
Chlordane		1	2.7
DDT/DDD/DDE (total)			0.75
Dieldrin			0.07
Endrin			0.2
Hexachlorobenzene			17
Heptachlor/heptachlor epoxide (total)			0.4
Pentachlorophenol	3	6	4.5
OTHER CHLORINATED ORGANICS:			
1,2,3,4-Tetrachlorobenzene		10	
1,2,3-Trichlorobenzene		20	
1,2,4-Trichlorobenzene		20	
1,2-Dichloropropane		700	
1,4-Dichlorobenzene		20	
2,3,4,5-Tetrachlorophenol		20	
2,3,5,6-Tetrachloroaniline	20	20	
2,4,5-Trichloroaniline	20	20	

2,4,5-Trichlorophenol	4	9	
2,4,6-Trichlorophenol		10	
2,4-Dichloroaniline		100	
3,4-Dichloroaniline		20	
3,4-Dichlorophenol	20	20	
3-Chloroaniline	20	30	
3-Chlorophenol	7	10	
Chlorinated dibenzofurans (total)			2E-06
Chloroacetamide		2	
Chlorobenzene		40	
Dioxins			2E-06
Hexachlorocyclopentadiene	10		
PCB mixtures (total)	40		0.65
Pentachloroaniline		100	
Pentachlorobenzene		20	
OTHER NONCHLORINATED ORGANICS:			
2,4-Dinitrophenol	20		
4-Nitrophenol		7	
Acenaphthene	20		
Benzo(a)pyrene			12
Biphenyl	60		
Diethylphthalate	100		
Dimethylphthalate		200	
Di-n-butyl phthalate	200		
Fluorene		30	
Furan	600		
Nitrobenzene		40	
N-nitrosodiphenylamine		20	
Phenol	70	30	
Styrene	300		
Toluene	200		
PETROLEUM:			
Gasoline Range Organics		100	5,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics		200	6,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

a Caution on misusing ecological indicator concentrations. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. Natural background concentrations may be substituted for ecological indicator concentrations provided in this table. The table is not intended for purposes such as evaluating sludges or wastes.
This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.

b For hazardous substances where a value is not provided, plant and soil biota indicator concentrations shall be based on a literature survey conducted in accordance with WAC 173-340-7493(4) and calculated using methods described in the publications listed below in footnotes c and d. Methods to be used for developing wildlife indicator concentrations are described in Tables 749-4 and 749-5.

c Based on benchmarks published in *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants: 1997 Revision*, Oak Ridge National Laboratory, 1997.

d Based on benchmarks published in *Toxicological Benchmarks for Potential Contaminants of Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process*, Oak Ridge National Laboratory, 1997.

e Calculated using the exposure model provided in Table 749-4 and chemical-specific values provided in Table 749-5. Where both avian and mammalian values are available, the wildlife value is the lower of the two.

f For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.

g Benchmark replaced by Washington state natural background concentration.

Table 749-4
Wildlife Exposure Model for Site-specific Evaluations.[a]

Plant	
K_{Plant}	Plant uptake coefficient (dry weight basis)
	Units: mg/kg plant/mg/kg soil
	Value: chemical-specific (see Table 749-5)
Soil biota Surrogate receptor: Earthworm	
BAF_{Worm}	Earthworm bioaccumulation factor (dry weight basis)
	Units: mg/kg worm/mg/kg soil
	Value: chemical-specific (see Table 749-5)
Mammalian predator Surrogate receptor: Shrew (*Sorex*)	
$P_{SB\ (shrew)}$	Proportion of contaminated food (earthworms) in shrew diet
	Units: unitless
	Value: 0.50
$FIR_{Shrew,DW}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.45
$SIR_{Shrew,DW}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0045
$RGAF_{Soil,\ shrew}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Shrew}	Toxicity reference value for shrew
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.1 Acres
Avian predator Surrogate receptor: American robin (*Turdus migratorius*)	
$P_{SB\ (Robin)}$	Proportion of contaminated food (soil biota) in robin diet
	Unit: unitless
	Value: 0.52
$FIR_{Robin,DW}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.207
$SIR_{Robin,DW}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0215
$RGAF_{Soil,\ robin}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Robin}	Toxicity reference value for robin
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.6 Acres
Mammalian herbivore Surrogate receptor: Vole (*Microtus*)	
$P_{Plant,\ vole}$	Proportion of contaminated food (plants) in vole diet
	Units: unitless
	Value: 1.0
$FIR_{Vole,DW}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.315
$SIR_{Vole,DW}$	Soil ingestion rate (dry weight basis)

	Units: kg dry soil/kg body weight - day
	Value: 0.0079
$RGAF_{Soil, vole}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Vole}	Toxicity reference value for vole
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.08 Acres
Soil concentrations for wildlife protection[b]	
(1) Mammalian predator: $SC_{MP} = (T_{Shrew})/[(FIR_{Shrew,DW} \times P_{SB\ (shrew)} \times BAF_{Worm}) + (SIR_{Shrew,DW} \times RGAF_{Soil, shrew})]$	
(2) Avian predator: $SC_{AP} = (T_{Robin})/[(FIR_{Robin,DW} \times P_{SB\ (Robin)} \times BAF_{Worm}) + (SIR_{Robin,DW} \times RGAF_{Soil, robin})]$	
(3) Mammalian herbivore: $SC_{MH} = (T_{Vole})/[(FIR_{Vole,DW} \times P_{Plant, vole} \times K_{Plant}) + (SIR_{Vole,DW} \times RGAF_{Soil, vole})]$	

Footnotes:

a Substitutions for default receptors may be made as provided for in WAC 173-340-7493(7). If a substitute species is used, the values for food and soil ingestion rates, and proportion of contaminated food in the diet, may be modified to reasonable maximum exposure estimates for the substitute species based on a literature search conducted in accordance with WAC 173-340-7493(4).
Additional species may be added on a site-specific basis as provided in WAC 173-340-7493 (2)(a).
The department shall consider proposals for modifications to default values provided in this table based on new scientific information in accordance with WAC 173-340-702(14).

b Use the lowest of the three concentrations calculated as the wildlife value.

Table 749-5

Default Values for Selected Hazardous Substances for use with the Wildlife Exposure Model in Table 749-4.[a]

	Toxicity reference value (mg/kg - d)				
Hazardous Substance	**BAF_{Worm}**	**K_{Plant}**	**Shrew**	**Vole**	**Robin**
METALS:					
Arsenic III	1.16	0.06	1.89	1.15	
Arsenic V	1.16	0.06	35	35	22
Barium	0.36		43.5	33.3	
Cadmium	4.6	0.14	15	15	20
Chromium	0.49		35.2	29.6	5
Copper	0.88	0.020	44	33.6	61.7
Lead	0.69	0.0047	20	20	11.3
Manganese	0.29		624	477	
Mercury, inorganic	1.32	0.0854	2.86	2.18	0.9
Mercury, organic	1.32		0.352	0.27	0.064
Molybdenum	0.48	1.01	3.09	2.36	35.3
Nickel	0.78	0.047	175.8	134.4	107
Selenium	10.5	0.0065	0.725	0.55	1
Zinc	3.19	0.095	703.3	537.4	131
PESTICIDES:					
Aldrine	4.77	0.007[b]	2.198	1.68	0.06
Benzene hexachloride (including lindane)	10.1				7
Chlordane	17.8	0.011[b]	10.9	8.36	10.7
DDT/DDD/DDE	10.6	0.004[b]	8.79	6.72	0.87
Dieldrin	28.8	0.029[b]	0.44	0.34	4.37
Endrin	3.6	0.038[b]	1.094	0.836	0.1
Heptachlor/heptachlor epoxide	10.9	0.027[b]	2.857	2.18	0.48
Hexachlorobenzene	1.08				2.4
Pentachlorophenol	5.18	0.043[b]	5.275	4.03	
OTHER CHLORINATED ORGANICS:					
Chlorinated dibenzofurans	48				1.0E-05
Dioxins	48	0.005[b]	2.2E-05	1.7E-05	1.4E-04
PCB mixtures	4.58	0.087[b]	0.668	0.51	1.8
OTHER NONCHLORINATED ORGANICS:					
Benzo(a)pyrene	0.43	0.011	1.19	0.91	

Footnotes:

a For hazardous substances not shown in this table, use the following default values. Alternatively, use values established from a literature survey conducted in accordance with WAC 173-340-7493(4) and approved by the department.

K_{Plant}: Metals (including metalloid elements): 1.01
Organic chemicals: $K_{Plant}=10^{(1.588-(0.578\log Kow))}$, where log K_{ow} is the logarithm of the octanol-water partition coefficient.

BAF_{Worm}: Metals (including metalloid elements): 4.6
Nonchlorinated organic chemicals:
log K_{ow} < 5: 0.7
log K_{ow} > 5: 0.9

Chlorinated organic chemicals:
log K_{ow} < 5: 4.7
log K_{ow} > 5: 11.8

$RGAF_{Soil}$ (all receptors): 1.0

Toxicity reference values (all receptors): Values established from a literature survey conducted in accordance with WAC 173-340-7493(4).

Site-specific values may be substituted for default values, as described below:

K_{Plant} Value from a literature survey conducted in accordance with WAC 173-340-7493(4) or from empirical studies at the site.

BAF_{Worm} Value from a literature survey conducted in accordance with WAC 173-340-7493(4) or from empirical studies at the site.

$RGAF_{Soil}$ (all receptors): Value established from a literature survey conducted in accordance with WAC 173-340-7493(4).

Toxicity reference values (all receptors): Default toxicity reference values provided in this table may be replaced by a value established from a literature survey conducted in accordance with WAC 173-340-7493(4).

b Calculated from log K_{ow} using formula in footnote a.

Table 830-1
Required Testing for Petroleum Releases.

	Gasoline Range Organics (GRO) (1)	Diesel Range Organics (DRO) (2)	Heavy Oils (DRO) (3)	Mineral Oils (4)	Waste Oils and Unknown Oils (5)
Volatile Petroleum Compounds					
Benzene	X (6)	X (7)			X (8)
Toluene	X (6)	X (7)			X (8)
Ethyl benzene	X (6)	X (7)			X (8)
Xylenes	X (6)	X (7)			X (8)
n-Hexane	X (9)				
Fuel Additives and Blending Compounds					
Dibromoethane, 1-2 (EDB); and Dichloroethane, 1-2 (EDC)	X (10)				X (8)
Methyl tertiary-butyl ether (MTBE)	X (11)				X (8)
Total lead &other additives	X (12)				X(8)
Other Petroleum Components					
Carcinogenic PAHs		X (13)	X (13)		X (8)
Naphthalenes	X (14)	X (14)	X (14)		X (14)
Other Compounds					
Polychlorinated Biphenyls (PCBs)			X (15)	X (15)	X (8)
Halogenated Volatile Organic Compounds (VOCs)					X (8)
Other	X (16)	X (16)	X (16)	X (16)	X (16)
Total Petroleum Hydrocarbons Methods					
TPH Analytical Method for Total TPH (Method A Cleanup Levels) (17)	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx	NWTPH-Dx	NWTPH-Gx & NWTPH-Dx
TPH Analytical Methods for TPH fractions (Methods B or C) (17)	VPH	EPH	EPH	EPH	VPH and EPH

Use of Table 830-1: An "X" in the box means that the testing requirement applies to ground water and soil if a release is known or suspected to have occurred to that medium, unless otherwise specified in the footnotes. A box with no "X" indicates (except in the last two rows) that, for the type of petroleum product release indicated in the top row, analyses for the hazardous substance(s) named in the far-left column corresponding to the empty box are not typically required as part of the testing for petroleum releases. However, such analyses may be required based on other site-specific information. Note that testing for Total Petroleum Hydrocarbons (TPH) is required for every type of petroleum release, as indicated in the bottom two rows of the table. The testing method for TPH depends on the type of petroleum product released and whether Method A or Method B or C is being used to determine TPH cleanup levels. See WAC 173-340-830 for analytical procedures. **The footnotes to this table are important for understanding the specific analytical requirements for petroleum releases.**

Footnotes:

(1) The following petroleum products are common examples of GRO: automotive and aviation gasolines, mineral spirits, stoddard solvents, and naphtha. To be in this range, 90 percent of the petroleum components need to be quantifiable using the NWTPH-Gx; if NWTPH-HCID results are used for this determination, then 90 percent of the "area under the TPH curve" must be quantifiable using NWTPH-Gx. Products such as jet fuel, diesel No. 1, kerosene, and heating oil may require analysis as both GRO and DRO depending on the range of petroleum components present (range can be measured by NWTPH-HCID). (See footnote 17 on analytical methods.)

(2) The following petroleum products are common examples of DRO: Diesel No. 2, fuel oil No. 2, light oil (including some bunker oils). To be in this range, 90 percent of the petroleum components need to be quantifiable using the NWTPH-Dx quantified against a diesel standard. Products such as jet fuel, diesel No. 1, kerosene, and heating oil may require analysis as both GRO and DRO depending on the range of petroleum components present as measured in NWTPH-HCID.

(3) The following petroleum products are common examples of the heavy oil group: Motor oils, lube oils, hydraulic fluids, etc. Heavier oils may require the addition of an appropriate oil range standard for quantification.

(4) Mineral oil means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors.

(5) The waste oil category applies to waste oil, oily wastes, and unknown petroleum products and mixtures of petroleum and nonpetroleum substances. Analysis of other chemical components (such as solvents) than those listed may be required based on site-specific information. Mixtures of identifiable petroleum products (such as gasoline and diesel, or diesel and motor oil) may be analyzed based on the presence of the individual products, and need not be treated as waste and unknown oils.

(6) When using Method A, testing soil for benzene is required. Furthermore, testing ground water for BTEX is necessary when a petroleum release to ground water is known or suspected. If the ground water is tested and toluene, ethyl benzene or xylene is in the ground water above its respective Method A cleanup level, the soil must also be tested for that chemical. When using Method B or C, testing the soil for BTEX is required and testing for BTEX in ground water is required when a release to ground water is known or suspected.

(7)(a) For DRO releases from other than home heating oil systems, follow the instructions for GRO releases in Footnote (6).

(b) For DRO releases from typical home heating oil systems (systems of 1,100 gallons or less storing heating oil for residential consumptive use on the premises where stored), testing for BTEX is not usually required for either ground water or soil. Testing of the ground water is also not usually required for these systems; however, if the ground water is tested and benzene is found in the ground water, the soil must be tested for benzene.

(8) Testing is required in a sufficient number of samples to determine whether this chemical is present at concentrations of concern. If the chemical is found to be at levels below the applicable cleanup level, then no further analysis is required.

(9) Testing for n-hexane is required when VPH analysis is performed for Method B or C. In this case, the concentration of n-hexane should be deleted from its respective fraction to avoid double-counting its concentration. n-Hexane's contribution to overall toxicity is then evaluated using its own reference dose.

(10) Volatile fuel additives (such as dibromoethane, 1 - 2 (EDB) (CAS# 106-93-4) and dichloroethane, 1 - 2 (EDC) (CAS# 107-06-2)) must be part of a volatile organics analysis (VOA) of GRO contaminated ground water. If any is found in ground water, then the contaminated soil must also be tested for these chemicals.

(11) Methyl tertiary-butyl ether (MTBE) (CAS# 1634-04-4) must be analyzed in GRO contaminated ground water. If any is found in ground water, then the contaminated soil must also be tested for MTBE.

(12)(a) For automotive gasoline where the release occurred prior to 1996 (when "leaded gasoline" was used), testing for lead is required unless it can be demonstrated that lead was not part of the release. If this demonstration cannot be made, testing is required in a sufficient number of samples to determine whether lead is present at concentrations of concern. Other additives and blending compounds of potential environmental significance may need to be considered for testing, including: tertiary-butyl alcohol (TBA); tertiary-amyl methyl ether (TAME); ethyl tertiary-butyl ether (ETBE); ethanol; and methanol. Contact the department for additional testing recommendations regarding these and other additives and blending compounds.

(b) For aviation gasoline, racing fuels and similar products, testing is required for likely fuel additives (especially lead) and likely blending compounds, no matter when the release occurred.

(13) Testing for carcinogenic PAHs is required for DRO and heavy oils, except for the following products for which adequate information exists to indicate their absence: Diesel No. 1 and 2, home heating oil, kerosene, jet fuels, and electrical insulating mineral oils. The carcinogenic PAHs include benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, benzo(a)anthracene, and benzo(b)fluoranthene.

(14)(a) Except as noted in (b) and (c), testing for the noncarcinogenic PAHs, including the "naphthalenes" (naphthalene, 1-methylnaphthalene, and 2-methyl-naphthalene) is not required when using Method A cleanup levels, because they are included in the TPH cleanup level.

(b) Testing of soil for naphthalenes is required under Methods B and C when the inhalation exposure pathway is evaluated.

(c) If naphthalenes are found in ground water, then the soil must also be tested for naphthalenes.

(15) Testing for PCBs is required unless it can be demonstrated that: (1) the release originated from an electrical device manufactured for use in the United States after July 1, 1979; (2) oil containing PCBs was never used in the equipment suspected as the source of the release (examples of equipment where PCBs are likely to be found include transformers, electric motors, hydraulic systems, heat transfer systems, electromagnets, compressors, capacitors, switches and miscellaneous other electrical devices); or, (3) the oil released was recently tested and did not contain PCBs.

(16) Testing for other possible chemical contaminants may be required based on site-specific information.

(17) The analytical methods NWTPH-Gx, NWTPH-Dx, NWTPH-HCID, VPH, and EPH are methods published by the department of ecology and available on the department's Internet web site: http://www.ecy.wa.gov/programs/tcp/cleanup.html.

[Statutory Authority: Chapter 70.105D RCW. 01-05-024 (Order 97-09A), § 173-340-900, filed 2/12/01, effective 8/15/01.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Chapter 173-400 WAC

GENERAL REGULATIONS FOR AIR POLLUTION SOURCES

WAC

WAC 173-400-030 Definitions. Except as provided elsewhere in this chapter, the following definitions apply throughout the chapter:

(1) **"Actual emissions"** means the actual rate of **emissions** of a pollutant from an **emission unit**, as determined in accordance with (a) through (c) of this subsection.

(a) In general, **actual emissions** as of a particular date shall equal the average rate, in tons per year, at which the **emissions unit** actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal **source** operation. **Ecology** or an **authority** shall allow the use of a different time period upon a determination that it is more representative of normal **source** operation. **Actual emissions** shall be calculated using the **emissions unit's** actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

(b) **Ecology** or an **authority** may presume that **source**-specific **allowable emissions** for the unit are equivalent to the **actual emissions** of the **emissions unit**.

(c) For any **emissions unit** which has not begun normal operations on the particular date, **actual emissions** shall equal the **potential to emit** of the **emissions unit** on that date.

(2) **"Adverse impact on visibility"** is defined in WAC 173-400-117.

(3) **"Air contaminant"** means dust, fumes, mist, smoke, other **particulate matter**, vapor, gas, odorous substance, or any combination thereof. **"Air pollutant"** means the same as **"air contaminant."**

(4) **"Air pollution"** means the presence in the outdoor atmosphere of one or more **air contaminants** in sufficient quantities, and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property. For the purposes of this chapter, air pollution shall not include **air contaminants** emitted in compliance with chapter 17.21 RCW, the Washington Pesticide Application Act, which regulates the application and control of the use of various pesticides.

(5) **"Allowable emissions"** means the **emission** rate of a **source** calculated using the maximum rated capacity of the **source** (unless the **source** is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

(a) The applicable standards as in 40 CFR Part 60 or 61;

(b) Any applicable **SIP emissions limitation** including those with a future compliance date; or

(c) The **emissions** rate specified as a federally enforceable permit condition, including those with a future compliance date.

(6) **"Ambient air"** means the surrounding outside air.

(7) **"Ambient air quality standard"** means an established concentration, exposure time, and frequency of occurrence of air **contaminant(s)** in the ambient air which shall not be exceeded.

(8) **"Approval order"** is defined in **"order of approval."**

(9) **"Attainment area"** means a geographic area designated by EPA at 40 CFR Part 81 as having attained the **National Ambient Air Quality Standard** for a given **criteria pollutant**.

(10) **"Authority"** means any air pollution control agency whose jurisdictional boundaries are coextensive with the boundaries of one or more counties.

(11) **"Begin actual construction"** means, in general, initiation of physical on-site construction activities on an **emission unit** which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying underground pipe work and construction of permanent storage structures. With respect to a change in method of operations, this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

(12) **"Best available control technology (BACT)"** means an **emission limitation** based on the maximum degree of reduction for each air pollutant subject to regulation under chapter 70.94 RCW emitted from or which results from any new or modified **stationary source**, which the permitting **authority**, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such **source** or **modification** through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of the "best available control technology" result in **emissions** of any pollutants which will exceed the **emissions** allowed by any applicable standard under 40 CFR Part 60 and Part 61. **Emissions** from any **source** utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under the definition of **BACT** in the **Federal Clean Air Act** as it existed prior to enactment of the Clean Air Act Amendments of 1990.

(13) **"Best available retrofit technology (BART)"** means an **emission limitation** based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an **existing stationary facility**. The **emission limitation** must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the **source**, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

(14) **"Bubble"** means a set of **emission** limits which allows an increase in **emissions** from a given **emissions unit** in exchange for a decrease in **emissions** from another **emis-**

sions unit, pursuant to RCW 70.94.155 and WAC 173-400-120.

(15) **"Capacity factor"** means the ratio of the average load on equipment or a machine for the period of time considered, to the manufacturer's capacity rating of the machine or equipment.

(16) **"Class I area"** means any area designated under section 162 or 164 of the **Federal Clean Air Act** as a Class I area. The following areas are the Class I areas in Washington state:

(a) Alpine Lakes Wilderness;
(b) Glacier Peak Wilderness;
(c) Goat Rocks Wilderness;
(d) Mount Adams Wilderness;
(e) Mount Rainier National Park;
(f) North Cascades National Park;
(g) Olympic National Park;
(h) Pasayten Wilderness; and
(i) Spokane Indian Reservation.

(17) **"Combustion and incineration units"** means units using combustion for waste disposal, steam production, chemical recovery or other process requirements; but excludes **open burning**.

(18)(a) **"Commenced"** as applied to construction, means that the owner or operator has all the necessary preconstruction approvals or permits and either has:

(i) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(ii) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the **source** to be completed within a reasonable time.

(b) For the purposes of this definition, **"necessary preconstruction approvals"** means those permits or **orders of approval** required under federal air quality control laws and regulations, including state, local and federal regulations and orders contained in the **SIP**.

(19) **"Concealment"** means any action taken to reduce the observed or measured concentrations of a pollutant in a gaseous effluent while, in fact, not reducing the total amount of pollutant discharged.

(20) **"Criteria pollutant"** means a pollutant for which there is established a **National Ambient Air Quality Standard** at 40 CFR Part 50. The criteria pollutants are carbon monoxide (CO), particulate matter, ozone (O_3) sulfur dioxide (SO_2), lead (Pb), and nitrogen dioxide (NO_2).

(21) **"Director"** means director of the Washington state department of **ecology** or duly authorized representative.

(22) **"Dispersion technique"** means a method which attempts to affect the concentration of a pollutant in the **ambient air** other than by the use of pollution abatement equipment or integral process pollution controls.

(23) **"Ecology"** means the Washington state department of ecology.

(24) **"Emission"** means a release of **air contaminants** into the **ambient air**.

(25) **"Emission reduction credit (ERC)"** means a credit granted pursuant to WAC 173-400-131. This is a voluntary reduction in **emissions**.

(26) **"Emission standard"** and **"emission limitation"** means a requirement established under the **Federal Clean Air Act** or chapter 70.94 RCW which limits the quantity, rate, or concentration of **emissions** of **air contaminants** on a continuous basis, including any requirement relating to the operation or maintenance of a **source** to assure continuous **emission** reduction and any design, equipment work practice, or operational standard adopted under the **Federal Clean Air Act** or chapter 70.94 RCW.

(27) **"Emissions unit"** means any part of a **stationary source** or **source** which emits or would have the **potential to emit** any pollutant subject to regulation under the **Federal Clean Air Act**, chapter 70.94 or 70.98 RCW.

(28) **"Excess emissions"** means **emissions** of an **air pollutant** in excess of any applicable **emission standard**.

(29) **"Excess stack height"** means that portion of a **stack** which exceeds the greater of sixty-five meters or the calculated **stack height** described in WAC 173-400-200(2).

(30) **"Existing stationary facility (FACILITY)"** is defined in WAC 173-400-151.

(31) **"Federal Clean Air Act (FCAA)"** means the Federal Clean Air Act, also known as Public Law 88-206, 77 Stat. 392, December 17, 1963, 42 U.S.C. 7401 et seq., as last amended by the Clean Air Act Amendments of 1990, P.L. 101-549, November 15, 1990.

(32) **"Federal Class I area"** means any federal land that is classified or reclassified **Class I**. The following areas are federal Class I areas in Washington state:

(a) Alpine Lakes Wilderness;
(b) Glacier Peak Wilderness;
(c) Goat Rocks Wilderness;
(d) Mount Adams Wilderness;
(e) Mount Rainier National Park;
(f) North Cascades National Park;
(g) Olympic National Park; and
(h) Pasayten Wilderness.

(33) **"Federal land manager"** means the secretary of the department with authority over federal lands in the United States. This includes, but is not limited to, the U.S. Department of the Interior - National Park Service, the U.S. Department of Agriculture - Forest Service, and/or the U.S. Department of the Interior - Bureau of Land Management.

(34) **"Federally enforceable"** means all limitations and conditions which are enforceable by **EPA**, including those requirements developed under 40 CFR Parts 60 and 61, requirements within any established under 40 CFR 52.21 or under a **SIP** approved **new source** review regulation, including operating permits issued under chapter 173-401 WAC and expressly requires adherence to any permit issued under these programs.

(35) **"Fossil fuel-fired steam generator"** means a device, furnace, or boiler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

(36) **"Fugitive dust"** means a particulate **emission** made airborne by forces of wind, man's activity, or both. Unpaved roads, construction sites, and tilled land are examples of areas that originate fugitive dust. Fugitive dust is a type of **fugitive emission**.

(37) **"Fugitive emissions"** means **emissions** which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(38) **"General process unit"** means an **emissions unit** using a procedure or a combination of procedures for the purpose of causing a change in material by either chemical or physical means, excluding combustion.

(39) **"Good engineering practice (GEP)"** refers to a calculated **stack height** based on the equation specified in WAC 173-400-200 (2)(a)(ii).

(40) **"Incinerator"** means a furnace used primarily for the thermal destruction of waste.

(41) **"In operation"** means engaged in activity related to the primary design function of the **source**.

(42) **"Lowest achievable emission rate (LAER)"** means for any **source** that rate of **emissions** which reflects the more stringent of:

(a) The most stringent **emission limitation** which is contained in the implementation plan of any state for such class or category of **source**, unless the owner or operator of the proposed new or modified **source** demonstrates that such limitations are not achievable; or

(b) The most stringent **emission limitation** which is achieved in practice by such class or category of **source**.

In no event shall the application of this term permit a proposed new or modified **source** to emit any pollutant in excess of the amount allowable under applicable **New Source Performance Standards**.

(43) **"Mandatory Class I federal area"** means any area defined in Section 162(a) of the **Federal Clean Air Act**. The following areas are the mandatory Class I federal areas in Washington state:

(a) Alpine Lakes Wilderness;
(b) Glacier Peak Wilderness;
(c) Goat Rocks Wilderness;
(d) Mount Adams Wilderness;
(e) Mount Rainier National Park;
(f) North Cascades National Park;
(g) Olympic National Park; and
(h) Pasayten Wilderness;

(44)(a) **"Major modification,"** as it applies to **sources** subject to requirements for **new sources** in **nonattainment areas**, is defined in WAC 173-400-112.

(b) **"Major modification,"** as it applies to **sources** subject to requirements for **new sources** in **attainment** or **unclassified areas**, is defined in WAC 173-400-113.

(45)(a) **"Major stationary source,"** as it applies to **sources** subject to requirements for **new sources** in **nonattainment areas**, is defined in WAC 173-400-112.

(b) **"Major stationary source,"** as it applies to **sources** subject to requirements for **new sources** in **attainment** or **unclassified areas**, is defined in WAC 173-400-113.

(46) **"Masking"** means the mixing of a chemically nonreactive control agent with a malodorous gaseous effluent to change the perceived odor.

(47) **"Materials handling"** means the handling, transporting, loading, unloading, storage, and transfer of materials with no significant chemical or physical alteration.

(48) **"Modification"** means any physical change in, or change in the method of operation of, a **stationary source** that increases the amount of any **air contaminant** emitted by such **source** or that results in the **emissions** of any **air contaminant** not previously emitted. The term modification shall be construed consistent with the definitions of modification in Section 7411, Title 42, United States Code, and with rules implementing that section.

(49) **"National Ambient Air Quality Standard (NAAQS)"** means an **ambient air quality standard** set by EPA at 40 CFR Part 50 and includes standards for carbon monoxide (CO), particulate matter, ozone (O_3), sulfur dioxide (SO_2), lead (Pb), and nitrogen dioxide (NO_2).

(50) **"National Emission Standards for Hazardous Air Pollutants (NESHAPS)"** means the federal rules in 40 CFR Part 61.

(51) **"National Emission Standards for Hazardous Air Pollutants for Source Categories"** means the federal rules in 40 CFR Part 63.

(52) **"Natural conditions"** means naturally occurring phenomena that reduce visibility as measured in terms of light extinction, visual range, contrast, or coloration.

(53)(a) **"Net emissions increase,"** as it applies to **sources** subject to requirements for **new sources** in **nonattainment areas**, is defined in WAC 173-400-112.

(b) **"Net emissions increase,"** as it applies to **sources** subject to requirements for **new sources** in **attainment** or **unclassified areas**, is defined in WAC 173-400-113.

(54) **"New source"** means:

(a) The construction or **modification** of a **stationary source** that increases the amount of any **air contaminant** emitted by such **source** or that results in the **emission** of any **air contaminant** not previously emitted; and

(b) Any other project that constitutes a new source under the **Federal Clean Air Act**.

(55) **"New Source Performance Standards (NSPS)"** means the federal rules in 40 CFR Part 60.

(56) **"Nonattainment area"** means a geographic area designated by EPA at 40 CFR Part 81 as exceeding a **National Ambient Air Quality Standard (NAAQS)** for a given **criteria pollutant**. An area is nonattainment only for the pollutants for which the area has been designated nonattainment.

(57) **"Nonroad engine"** means:

(a) Except as discussed in (b) of this subsection, a nonroad engine is any internal combustion engine:

(i) In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or

(ii) In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or

(iii) That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(b) An internal combustion engine is not a nonroad engine if:

(i) The engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the Federal Clean Air Act; or

(ii) The engine is regulated by a **New Source Performance Standard** promulgated under section 111 of the Federal Clean Air Act; or

(iii) The engine otherwise included in (a)(iii) of this subsection remains or will remain at a location for more than twelve consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two years) and that operates at that single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.

(58) **"Notice of construction application"** means a written application to permit construction of a **new source, modification** of an existing **stationary source** or replacement or substantial alteration of control technology at an existing **stationary source**.

(59) **"Opacity"** means the degree to which an object seen through a plume is obscured, stated as a percentage.

(60) **"Open burning"** means the combustion of material in an open fire or in an outdoor container, without providing for the control of combustion or the control of the **emissions** from the combustion. Wood waste disposal in wigwam burners is not considered **open** burning.

(61) **"Order"** means any order issued by **ecology** or a local air **authority** pursuant to chapter 70.94 RCW, including, but not limited to RCW 70.94.332, 70.94.152, 70.94.153, and 70.94.141(3), and includes, where used in the generic sense, the terms **order**, corrective action order, **order of approval**, and **regulatory order**.

(62) **"Order of approval"** or **"approval order"** means a **regulatory order** issued by **ecology** or the **authority** to approve the **notice of construction application** for a proposed **new source** or **modification**, or the replacement or substantial alteration of control technology at an existing **stationary source**.

(63) **"Ozone depleting substance"** means any substance listed in Appendices A and B to Subpart A of 40 CFR Part 82.

(64) **"Particulate matter"** or **"particulates"** means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(65) **"Particulate matter emissions"** means all finely divided solid or liquid material, other than uncombined water, emitted to the **ambient air** as measured by applicable reference methods, or an equivalent or alternative method specified in Title 40, chapter I of the Code of Federal Regulations or by a test method specified in the **SIP**.

(66) **"Parts per million (ppm)"** means parts of a contaminant per million parts of gas, by volume, exclusive of water or **particulates**.

(67) **"Permitting agency"** means **ecology** or the local air pollution control **authority** with jurisdiction over the **source**.

(68) **"Person"** means an individual, firm, public or private corporation, association, partnership, political subdivision, municipality, or government agency.

(69) **"PM-10"** means **particulate matter** with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on 40 CFR Part 50 Appendix J and designated in accordance with 40 CFR Part 53 or by an equivalent method designated in accordance with 40 CFR Part 53.

(70) **"PM-10 emissions"** means finely divided solid or liquid material, including condensible **particulate matter**, with an aerodynamic diameter less than or equal to a nominal 10 micrometers emitted to the **ambient air** as measured by an applicable reference method, or an equivalent or alternate method, specified in Appendix M of 40 CFR Part 51 or by a test method specified in the **SIP**.

(71) **"Potential to emit"** means the maximum capacity of a **source** to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including **air pollution** control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on **emissions** is federally enforceable. Secondary emissions do not count in determining the **potential to emit** of a **source**.

(72) **"Prevention of significant deterioration (PSD)"** means the program in WAC 173-400-141.

(73) **"Projected width"** means that dimension of a structure determined from the frontal area of the structure, projected onto a plane perpendicular to a line between the center of the **stack** and the center of the building.

(74) **"Reasonably attributable"** means attributable by visual observation or any other technique the state deems appropriate.

(75) **"Reasonably available control technology (RACT)"** means the lowest **emission** limit that a particular **source** or **source** category is capable of meeting by the application of control technology that is reasonably available con-

sidering technological and economic feasibility. RACT is determined on a case-by-case basis for an individual **source** or **source** category taking into account the impact of the **source** upon air quality, the availability of additional controls, the **emission** reduction to be achieved by additional controls, the impact of additional controls on air quality, and the capital and operating costs of the additional controls. RACT requirements for any **source** or **source** category shall be adopted only after notice and opportunity for comment are afforded.

(76) **"Regulatory order"** means an **order** issued by **ecology** or an **authority** to an **air contaminant source** which applies to that **source**, any applicable provision of chapter 70.94 RCW, or the rules adopted thereunder, or, for **sources** regulated by a local air **authority**, the regulations of that **authority**.

(77)(a) **"Significant,"** as it applies to **sources** subject to requirements for **new sources** in **nonattainment areas**, is defined in WAC 173-400-112.

(b) **"Significant,"** as it applies to **sources** subject to requirements for **new sources** in **attainment** or **unclassified areas**, is defined in WAC 173-400-113.

(78) **"Source"** means all of the **emissions unit(s)** including quantifiable **fugitive emissions**, that are located on one or more contiguous or adjacent properties, and are under the control of the same **person** or **persons** under common control, whose activities are ancillary to the production of a single product or functionally related groups of products. Activities shall be considered ancillary to the production of a single product or functionally related group of products if they belong to the same major group (i.e., which have the same two digit code) as described in the *Standard Industrial Classification Manual, 1972,* as amended.

(79) **"Source category"** means all **sources** of the same type or classification.

(80) **"Stack"** means any point in a **source** designed to emit solids, liquids, or gases into the air, including a pipe or duct.

(81) **"Stack height"** means the height of an **emission** point measured from the ground-level elevation at the base of the **stack**.

(82) **"Standard conditions"** means a temperature of 20° (68° F) and a pressure of 760 mm (29.92 inches) of mercury.

(83) **"State implementation plan (SIP)"** or **"Washington SIP"** means the Washington SIP in 40 CFR Part 52, subpart WW. The SIP contains state, local and federal regulations and orders, the state plan and compliance schedules approved and promulgated by EPA, for the purpose of implementing, maintaining, and enforcing the **National Ambient Air Quality Standards**.

(84) **"Stationary source"** means any building, structure, facility, or installation which emits or may emit any air contaminant. This term does not include emissions resulting directly from an internal combustion engine for transportation purposes or from a **nonroad engine** or nonroad vehicle as defined in Section 216(11) of the **Federal Clean Air Act**.

(85) **"Sulfuric acid plant"** means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge.

(86) **"Synthetic minor"** means any **source** whose **potential to emit** has been limited below applicable thresholds by means of a federally enforceable **order**, rule, or permit condition.

(87) **"Total reduced sulfur (TRS)"** means the sum of the sulfur compounds hydrogen sulfide, mercaptans, dimethyl sulfide, dimethyl disulfide, and any other organic sulfides emitted and measured by **EPA** method 16 in Appendix A to 40 CFR Part 60 or an approved equivalent method and expressed as hydrogen sulfide.

(88) **"Total suspended particulate"** means **particulate matter** as measured by the method described in 40 CFR Part 50 Appendix B.

(89) **"Toxic air pollutant (TAP)"** or **"toxic air contaminant"** means any Class A or B toxic air pollutant listed in WAC 173-460-150 and 173-460-160. The term toxic air pollutant may include **particulate matter** and **volatile organic compounds** if an individual substance or a group of substances within either of these classes is listed in WAC 173-460-150 and/or 173-460-160. The term toxic air pollutant does not include **particulate matter** and **volatile organic compounds** as generic classes of compounds.

(90) **"Unclassifiable area"** means an area that cannot be designated **attainment** or **nonattainment** on the basis of available information as meeting or not meeting the **National Ambient Air Quality Standard** for the **criteria pollutant** and that is listed by **EPA** at 40 CFR Part 81.

(91) **"United States Environmental Protection Agency (USEPA)"** shall be referred to as **EPA**.

(92) **"Visibility impairment"** means any humanly perceptible change in visibility (light extinction, visual range, contrast, or coloration) from that which would have existed under natural conditions.

(93) **"Volatile organic compound (VOC)"** means any carbon compound that participates in atmospheric photochemical reactions.

(a) Exceptions. The following compounds are not a VOC: Acetone; carbon monoxide; carbon dioxide; carbonic acid; metallic carbides or carbonates; ammonium carbonate, methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane (methyl chloroform); 1,1,2-trichloro 1,2,2-trifluoroethane (CFC-113); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (HCFC-22); trifluoromethane (HFC-23); 1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); 1,1,1-trifluoro 2,2-dichloroethane (HCFC-123); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1-dichloro 1-fluoroethane (HCFC-141b); 1-chloro 1,1-difluoroethane (HCFC-142b); 2-chloro 1,1,1,2-tetrafluoroethane (HCFC-124); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxanes; perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-

dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); difluoromethane (HFC-32); ethylfluoride (HFC-161); 1,1,1,3,3,3-hexafluoropropane (HFC-236fa); 1,1,2,2,3-pentafluoropropane (HFC-245ca); 1,1,2,3,3-pentafluoropropane (HFC-245ea); 1,1,1,2,3-pentafluoropropane (HFC-245eb); 1,1,1,3,3-pentafluoropropane (HFC-245fa); 1,1,1,2,3,3-hexafluoropropane (HFC-236ea); 1,1,1,3,3-pentafluorobutane (HFC-365mfc); chlorofluoromethane (HCFC-31); 1 chloro-1-fluoroethane (HCFC-151a); 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a); 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane ($C_4F_9OCH_3$); 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCF_2OCH_3$); 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane ($C_4F_9OC_2H_5$); 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane($(CF_3)_2CFCF_2OC_2H_5$); methyl acetate and perfluorocarbon compounds that fall into these classes:

(i) Cyclic, branched, or linear completely fluorinated alkanes;

(ii) Cyclic, branched, or linear completely fluorinated ethers with no unsaturations;

(iii) Cyclic, branched, or linear completely fluorinated tertiary amines with no unsaturations; and

(iv) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(b) For the purpose of determining compliance with emission limits, VOC will be measured by the appropriate methods in 40 CFR Part 60 Appendix A. Where the method also measures compounds with negligible photochemical reactivity, these negligibly-reactive compounds may be excluded as VOC if the amount of the compounds is accurately quantified, and the exclusion is approved by **ecology**, the **authority**, or EPA.

(c) As a precondition to excluding these negligibly-reactive compounds as VOC or at any time thereafter, **ecology** or the **authority** may require an owner or operator to provide monitoring or testing methods and results demonstrating, to the satisfaction of **ecology** or the **authority**, the amount of negligibly-reactive compounds in the **source's emissions**.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-030, filed 8/15/01, effective 9/15/01. Statutory Authority: RCW 70.94.152. 98-01-183 (Order 96-01), § 173-400-030, filed 12/23/97, effective 1/23/98. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-030, filed 9/13/96, effective 10/14/96; 95-07-126 (Order 93-40), § 173-400-030, filed 3/22/95, effective 4/22/95; 93-18-007 (Order 93-03), § 173-400-030, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-030, filed 2/19/91, effective 3/22/91. Statutory Authority: RCW 70.94.331, 70.94.395 and 70.94.510. 85-06-046 (Order 84-48), § 173-400-030, filed 3/6/85. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-030, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-030, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-030, filed 5/8/79; Order DE 76-38, § 173-400-030, filed 12/21/76. Formerly WAC 18-04-030.]

WAC 173-400-035 Portable and temporary sources. (1) For portable sources which locate temporarily at particular sites, the owner(s) or operator(s) shall be allowed to operate at the temporary location providing that the owner(s) or operator(s) notifies **ecology** or the **authority** of intent to operate at the new location at least thirty days prior to starting the operation, and supplies sufficient information to enable **ecology** or the **authority** to determine that the operation will comply with the **emission standards** for a **new source**, and will not cause a violation of applicable **ambient air quality standards** and, if in a **nonattainment area**, will not interfere with scheduled attainment of **ambient standards**. The permission to operate shall be for a limited period of time (one year or less) and **ecology** or the **authority** may set specific conditions for operation during that period. A temporary source shall be required to comply with all applicable **emission standards**. A temporary or portable source that is considered a **major stationary source** within the meaning of WAC 173-400-113 must also comply with the requirements in WAC 173-400-141.

(2) This section applies statewide except where an authority has its own rule regulating such sources.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-035, filed 8/15/01, effective 9/15/01.]

WAC 173-400-040 General standards for maximum emissions. All **sources** and **emissions units** are required to meet the **emission standards** of this chapter. Where an **emission standard** listed in another chapter is applicable to a specific **emissions unit**, such standard will take precedent over a general **emission standard** listed in this chapter. When two or more **emissions units** are connected to a common **stack** and the operator elects not to provide the means or facilities to sample **emissions** from the individual **emissions units**, and the relative contributions of the individual **emissions units** to the common discharge are not readily distinguishable, then the **emissions** of the common **stack** must meet the most restrictive standard of any of the connected **emissions units**. Further, all **emissions units** are required to use **reasonably available control technology (RACT)** which may be determined for some **sources** or **source categories** to be more stringent than the applicable **emission limitations** of any chapter of Title 173 WAC. Where current controls are determined to be less than **RACT**, **ecology** or the **authority** shall, as provided in RCW 70.194.154, define **RACT** for each **source** or **source category** and issue a rule or **regulatory order** requiring the installation of **RACT**.

(1) **Visible emissions.** No **person** shall cause or permit the **emission** for more than three minutes, in any one hour, of an **air contaminant** from any **emissions unit** which at the **emission** point, or within a reasonable distance of the **emission** point, exceeds twenty percent **opacity** except:

(a) When the **emissions** occur due to soot blowing/grate cleaning and the operator can demonstrate that the **emissions** will not exceed twenty percent **opacity** for more than fifteen minutes in any eight consecutive hours. The intent of this provision is to permit the soot blowing and grate cleaning necessary to the operation of boiler facilities. This practice, except for testing and trouble shooting, is to be scheduled for the same approximate times each day and **ecology** or the **authority** be advised of the schedule.

(b) When the owner or operator of a **source** supplies valid data to show that the presence of uncombined water is the only reason for the **opacity** to exceed twenty percent.

(c) When two or more **emission units** are connected to a common **stack**, **ecology** or the **authority** may allow or require the use of an alternate time period if it is more representative of normal operations.

(d) When an alternate **opacity** limit has been established per RCW 70.94.331 (2)(c).

(2) **Fallout.** No **person** shall cause or permit the **emission** of **particulate matter** from any **source** to be deposited beyond the property under direct control of the owner or operator of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

(3) **Fugitive emissions.** The owner or operator of any **emissions unit** engaging in materials handling, construction, demolition or any other operation which is a **source** of fugitive emission:

(a) If located in an **attainment area** and not impacting any **nonattainment area**, shall take reasonable precautions to prevent the release of **air contaminants** from the operation.

(b) If the **emissions unit** has been identified as a **significant** contributor to the **nonattainment status** of a designated **nonattainment area**, shall be required to use reasonable and available control methods, which shall include any necessary changes in technology, process, or other control strategies to control **emissions** of the **air contaminants** for which **nonattainment** has been designated.

(4) **Odors.** Any **person** who shall cause or allow the generation of any odor from any **source** which may unreasonably interfere with any other property owner's use and enjoyment of his property must use recognized good practice and procedures to reduce these odors to a reasonable minimum.

(5) **Emissions detrimental to persons or property.** No person shall cause or permit the **emission** of any **air contaminant** from any **source** if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business.

(6) **Sulfur dioxide.**

No **person** shall cause or permit the **emission** of a gas containing sulfur dioxide from any **emissions unit** in excess of one thousand **ppm** of sulfur dioxide on a dry basis, corrected to seven percent oxygen for combustion **sources**, and based on the average of any period of sixty consecutive minutes, except:

When the owner or operator of an **emissions unit** supplies **emission** data and can demonstrate to **ecology** or the **authority** that there is no feasible method of reducing the concentration to less than one thousand **ppm** (on a dry basis, corrected to seven percent oxygen for **combustion sources**) and that the state and federal **ambient air quality standards** for sulfur dioxide will not be exceeded. In such cases, **ecology** or the **authority** may require specific **ambient air** monitoring stations be established, operated, and maintained by the owner or operator at mutually approved locations. All sampling results will be made available upon request and a monthly summary will be submitted to **ecology** or the **authority**.

(7) **Concealment and masking.** No **person** shall cause or permit the installation or use of any means which conceals or masks an **emission** of an **air contaminant** which would otherwise violate any provisions of this chapter.

(8) **Fugitive dust sources.**

(a) The owner or operator of a **source** of **fugitive dust** shall take reasonable precautions to prevent **fugitive dust** from becoming airborne and shall maintain and operate the **source** to minimize **emissions**.

(b) The owner or operator of any existing source of **fugitive dust** that has been identified as a **significant** contributor to a **PM-10 nonattainment area** shall be required to use **reasonably available control technology** to control **emissions**. Significance will be determined by the criteria found in WAC 173-400-113 (2)(c).

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-040, filed 8/15/01, effective 9/15/01. Statutory Authority: [RCW 70.94.331, 70.94.510 and chapter 70.94 RCW.] 00-23-130 (Order 98-27), § 173-400-040, filed 11/22/00, effective 12/23/00. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-040, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-040, filed 2/19/91, effective 3/22/91. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-040, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-040, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-040, filed 5/8/79; Order DE 76-38, § 173-400-040, filed 12/21/76. Formerly WAC 18-04-040.]

WAC 173-400-050 Emission standards for combustion and incineration units. (1) Combustion and incineration **emissions units** must meet all requirements of WAC 173-400-040 and, in addition, no **person** shall cause or permit **emissions** of **particulate matter** in excess of 0.23 gram per dry cubic meter at **standard conditions** (0.1 grain/dscf), except, for an **emissions unit** combusting wood derived fuels for the production of steam. No **person** shall allow or permit the **emission** of **particulate matter** in excess of 0.46 gram per dry cubic meter at **standard conditions** (0.2 grain/dscf), as measured by **EPA** method 5 in Appendix A to 40 CFR Part 60, (in effect on February 20, 2001) or approved procedures contained in *"Source Test Manual - Procedures For Compliance Testing,"* state of Washington, department of **ecology**, as of July 12, 1990, on file at ecology.

(2) For any **incinerator**, no **person** shall cause or permit **emissions** in excess of one hundred **ppm** of total carbonyls as measured by applicable **EPA** methods or acceptable procedures contained in *"Source Test Manual - Procedures for Compliance Testing,"* state of Washington, department of **ecology**, on file at **ecology**. **Incinerators** shall be operated only during daylight hours unless written permission to operate at other times is received from **ecology** or the **authority**.

(3) Measured concentrations for **combustion and incineration units** shall be adjusted for volumes corrected to seven percent oxygen, except when **ecology** or the **authority**

determines that an alternate oxygen correction factor is more representative of normal operations.

(4) **Commercial and industrial solid waste incineration units** constructed on or before November 30, 1999. (See WAC 173-400-115(2) for the requirements for a commercial and industrial solid waste incineration unit constructed after November 30, 1999, or modified or reconstructed after June 1, 2001.)

(a) Definitions.

(i) **"Commercial and industrial solid waste incineration (CISWI) unit"** means any combustion device that combusts commercial and industrial waste, as defined in this subsection. The boundaries of a CISWI unit are defined as, but not limited to, the commercial or industrial solid waste fuel feed system, grate system, flue gas system, and bottom ash. The CISWI unit does not include air pollution control equipment or the stack. The CISWI unit boundary starts at the commercial and industrial solid waste hopper (if applicable) and extends through two areas: (A) The combustion unit flue gas system, which ends immediately after the last combustion chamber. (B) The combustion unit bottom ash system, which ends at the truck loading station or similar equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling system.

(ii) **"Commercial and industrial solid waste"** means solid waste combusted in an enclosed device using controlled flame combustion without energy recovery that is a distinct operating unit of any commercial or industrial facility (including field erected, modular, and custom built incineration units operating with starved or excess air), or solid waste combusted in an air curtain incinerator without energy recovery that is a distinct operating unit of any commercial or industrial facility.

(b) Applicability. This section applies to incineration units that meet all three criteria:

(i) The incineration unit meets the definition of **CISWI unit** in this subsection.

(ii) The incineration unit commenced construction on or before November 30, 1999.

(iii) The incineration unit is not exempt under (c) of this subsection.

(c) The following types of incineration units are exempt from this subsection:

(i) *Pathological waste incineration units.* Incineration units burning 90 percent or more by weight (on a calendar quarter basis and excluding the weight of auxiliary fuel and combustion air) of pathological waste, low-level radioactive waste, and/or chemotherapeutic waste as defined in 40 CFR 60.2265 (in effect on January 30, 2001) are not subject to this section if you meet the two requirements specified in (c)(i)(A) and (B) of this subsection.

(A) Notify the **permitting agency** that the unit meets these criteria.

(B) Keep records on a calendar quarter basis of the weight of pathological waste, low-level radioactive waste, and/or chemotherapeutic waste burned, and the weight of all other fuels and wastes burned in the unit.

(ii) *Agricultural waste incineration units.* Incineration units burning 90 percent or more by weight (on a calendar quarter basis and excluding the weight of auxiliary fuel and combustion air) of agricultural wastes as defined in 40 CFR 60.2265 (in effect on January 30, 2001) are not subject to this subpart if you meet the two requirements specified in (c)(ii)(A) and (B) of this subsection.

(A) Notify the **permitting agency** that the unit meets these criteria.

(B) Keep records on a calendar quarter basis of the weight of agricultural waste burned, and the weight of all other fuels and wastes burned in the unit.

(iii) *Municipal waste combustion units.* Incineration units that meet either of the two criteria specified in (c)(iii)(A) and (B) of this subsection.

(A) Units are regulated under 40 CFR Part 60, subpart Ea or subpart Eb (in effect on July 1, 2000); Spokane County Air Pollution Control Authority Regulation 1, Section 6.17 (in effect on February 13, 1999); 40 CFR Part 60, subpart AAAA (adopted on December 6, 2000 and in effect on June 1, 2001); or WAC 173-400-050(5).

(B) Units burn greater than 30 percent municipal solid waste or refuse-derived fuel, as defined in 40 CFR Part 60, subparts Ea (in effect on July 1, 2000), Eb (in effect on July 1, 2000), and AAAA (adopted on December 6, 2000 and in effect on June 1, 2001), and WAC 173-400-050(5), and that have the capacity to burn less than 35 tons (32 megagrams) per day of municipal solid waste or refuse-derived fuel, if you meet the two requirements in (c)(iii)(B)(I) and (II) of this subsection.

(I) Notify the **permitting agency** that the unit meets these criteria.

(II) Keep records on a calendar quarter basis of the weight of municipal solid waste burned, and the weight of all other fuels and wastes burned in the unit.

(iv) *Medical waste incineration units.* Incineration units regulated under 40 CFR Part 60, subpart Ec (Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction is Commenced After June 20, 1996) (in effect on July 1, 2000);

(v) *Small power production facilities.* Units that meet the three requirements specified in (c)(v)(A) through (C) of this subsection.

(A) The unit qualifies as a small power-production facility under section 3 (17)(C) of the Federal Power Act (16 U.S.C. 796 (17)(C)).

(B) The unit burns homogeneous waste (not including refuse-derived fuel) to produce electricity.

(C) You notify the **permitting agency** that the unit meets all of these criteria.

(vi) *Cogeneration facilities.* Units that meet the three requirements specified in (c)(vi)(A) through (C) of this subsection.

(A) The unit qualifies as a cogeneration facility under section 3 (18)(B) of the Federal Power Act (16 U.S.C. 796 (18)(B)).

(B) The unit burns homogeneous waste (not including refuse-derived fuel) to produce electricity and steam or other forms of energy used for industrial, commercial, heating, or cooling purposes.

(C) You notify the permitting agency that the unit meets all of these criteria.

(vii) *Hazardous waste combustion units.* Units that meet either of the two criteria specified in (c)(vii)(A) or (B) of this subsection.

(A) Units for which you are required to get a permit under section 3005 of the Solid Waste Disposal Act.

(B) Units regulated under subpart EEE of 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors) (in effect on July 1, 2000).

(viii) *Materials recovery units.* Units that combust waste for the primary purpose of recovering metals, such as primary and secondary smelters;

(ix) *Air curtain incinerators.* Air curtain incinerators that burn only the materials listed in (c)(ix)(A) through (C) of this subsection are only required to meet the requirements under "Air Curtain Incinerators" in 40 CFR 60.2245 through 60.2260 (in effect on January 30, 2001).

(A) 100 percent wood waste.

(B) 100 percent clean lumber.

(C) 100 percent mixture of only wood waste, clean lumber, and/or yard waste.

(x) *Cyclonic barrel burners.* See 40 CFR 60.2265 (in effect on January 30, 2001).

(xi) *Rack, part, and drum reclamation units.* See 40 CFR 60.2265 (in effect on January 30, 2001).

(xii) *Cement kilns.* Kilns regulated under subpart LLL of 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry) (in effect on July 1, 2000).

(xiii) *Sewage sludge incinerators.* Incineration units regulated under 40 CFR Part 60, (Standards of Performance for Sewage Treatment Plants) (in effect on July 1, 2000).

(xiv) *Chemical recovery units.* Combustion units burning materials to recover chemical constituents or to produce chemical compounds where there is an existing commercial market for such recovered chemical constituents or compounds. The seven types of units described in (c)(xiv)(A) through (H) of this subsection are considered chemical recovery units.

(A) Units burning only pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery process and reused in the pulping process.

(B) Units burning only spent sulfuric acid used to produce virgin sulfuric acid.

(C) Units burning only wood or coal feedstock for the production of charcoal.

(D) Units burning only manufacturing by-product streams/residues containing catalyst metals which are reclaimed and reused as catalysts or used to produce commercial grade catalysts.

(E) Units burning only coke to produce purified carbon monoxide that is used as an intermediate in the production of other chemical compounds.

(F) Units burning only hydrocarbon liquids or solids to produce hydrogen, carbon monoxide, synthesis gas, or other gases for use in other manufacturing processes.

(G) Units burning only photographic film to recover silver.

(xv) *Laboratory analysis units.* Units that burn samples of materials for the purpose of chemical or physical analysis.

(d) Exceptions.

(i) Physical or operational changes to a CISWI unit made primarily to comply with this section do not qualify as a "modification" or "reconstruction" (as defined in 40 CFR 60.2815, in effect on January 30, 2001).

(ii) Changes to a CISWI unit made on or after June 1, 2001, that meet the definition of "modification" or "reconstruction" as defined in 40 CFR 60.2815 (in effect on January 30, 2001) mean the CISWI unit is considered a new unit and subject to WAC 173-400-115(2), which adopts 40 CFR Part 60, subpart CCCC by reference.

(e) A CISWI unit must comply with 40 CFR 60.2575 through 60.2875, in effect on January 30, 2001, which is adopted by reference. The federal rule contains these major components:

- Increments of progress towards compliance in 60.2575 through 60.2630;
- Waste management plan requirements in 60.2620 through 60.2630;
- Operator training and qualification requirements in 60.2635 through 60.2665;
- Emission limitations and operating limits in 60.2670 through 60.2685;
- Performance testing requirements in 60.2690 through 60.2725;
- Initial compliance requirements in 60.2700 through 60.2725;
- Continuous compliance requirements in 60.2710 through 60.2725;
- Monitoring requirements in 60.2730 through 60.2735;
- Recordkeeping and reporting requirements in 60.2740 through 60.2800;
- Title V operating permits requirements in 60.2805;
- Air curtain incinerator requirements in 60.2810 through 60.2870;
- Definitions in 60.2875; and
- Tables in 60.2875. In Table 1, the final control plan must be submitted before June 1, 2004, and final compliance must be achieved by June 1, 2005.

(i) Exception to adopting the federal rule. For purposes of this section, "administrator" includes the **permitting agency.**

(ii) Exception to adopting the federal rule. For purposes of this section, "you" means the owner or operator.

(iii) Exception to adopting the federal rule. For purposes of this section, each reference to "the effective date of state plan approval" means July 1, 2002.

(iv) Exception to adopting the federal rule. The Title V operating permit requirements in 40 CFR 2805(a) are not adopted by reference. Each CISWI unit, regardless of whether it is a major or nonmajor unit, is subject to the air operating permit regulation, chapter 173-401 WAC, beginning on July 1, 2002. See WAC 173-401-500 for the permit application requirements and deadlines.

(v) Exception to adopting the federal rule. The following compliance dates apply:

(A) The final control plan (Increment 1) must be submitted no later than July 1, 2003. (See Increment 1 in Table 1.)

(B) Final compliance (Increment 2) must be achieved no later than July 1, 2005. (See Increment 2 in Table 1.)

(5) **Small municipal waste combustion units** constructed on or before August 30, 1999. (See WAC 173-400-115(2) for the requirements for a municipal waste combustion unit constructed after August 30, 1999, or reconstructed or modified after June 6, 2001.)

(a) Definition. "Municipal waste combustion unit" means any setting or equipment that combusts, liquid, or gasified municipal solid waste including, but not limited to, field-erected combustion units (with or without heat recovery), modular combustion units (starved air- or excess-air), boilers (for example, steam generating units), furnaces (whether suspension-fired, grate-fired, mass-fired, air-curtain incinerators, or fluidized bed-fired), and pyrolysis/combustion units. Two criteria further define municipal waste combustion units:

(i) Municipal waste combustion units do not include the following units:

(A) Pyrolysis or combustion units located at a plastics or rubber recycling unit as specified under the exemptions in (d)(viii) and (ix) of this subsection.

(B) Cement kilns that combust municipal solid waste as specified under the exemptions in (d)(x) of this subsection.

(C) Internal combustion engines, gas turbines, or other combustion devices that combust landfill gases collected by landfill gas collection systems.

(ii) The boundaries of a municipal waste combustion unit are defined as follows. The municipal waste combustion unit includes, but is not limited to, the municipal solid waste fuel feed system, grate system, flue gas system, bottom ash system, and the combustion unit water system. The municipal waste combustion unit does not include air pollution control equipment, the stack, water treatment equipment, or the turbine-generator set. The municipal waste combustion unit boundary starts at the municipal solid waste pit or hopper and extends through three areas:

(A) The combustion unit flue gas system, which ends immediately after the heat recovery equipment or, if there is no heat recovery equipment, immediately after the combustion chamber.

(B) The combustion unit bottom ash system, which ends at the truck loading station or similar equipment that transfers the ash to final disposal. It includes all ash handling systems connected to the bottom ash handling system.

(C) The combustion unit water system, which starts at the feed water pump and ends at the piping that exits the steam drum or superheater.

(b) Applicability. This section applies to a municipal waste combustion unit that meets these three criteria:

(i) The municipal waste combustion unit has the capacity to combust at least 35 tons per day of municipal solid waste but no more than 250 tons per day of municipal solid waste or refuse-derived fuel.

(ii) The municipal waste combustion unit commenced construction on or before August 30, 1999.

(iii) The municipal waste combustion unit is not exempt under (c) of this section.

(c) Exempted units. The following municipal waste combustion units are exempt from the requirements of this section:

(i) *Small municipal waste combustion units that combust less than 11 tons per day.* Units are exempt from this section if four requirements are met:

(A) The municipal waste combustion unit is subject to a federally enforceable permit limiting the amount of municipal solid waste combusted to less than 11 tons per day.

(B) The owner or operator notifies the **permitting agency** that the unit qualifies for the exemption.

(C) The owner or operator of the unit sends a copy of the federally enforceable permit to the **permitting agency**.

(D) The owner or operator of the unit keeps daily records of the amount of municipal solid waste combusted.

(ii) *Small power production units.* Units are exempt from this section if four requirements are met:

(A) The unit qualifies as a small power production facility under section 3 (17)(C) of the Federal Power Act (16 U.S.C. 796 (17)(C)).

(B) The unit combusts homogeneous waste (excluding refuse-derived fuel) to produce electricity.

(C) The owner or operator notifies the **permitting agency** that the unit qualifies for the exemption.

(D) The owner or operator submits documentation to the **permitting agency** that the unit qualifies for the exemption.

(iii) *Cogeneration units.* Units are exempt from this section if four requirements are met:

(A) The unit qualifies as a small power production facility under section 3 (18)(C) of the Federal Power Act (16 U.S.C. 796 (18)(C)).

(B) The unit combusts homogeneous waste (excluding refuse-derived fuel) to produce electricity and steam or other forms of energy used for industrial, commercial, heating, or cooling purposes.

(C) The owner or operator notifies the **permitting agency** that the unit qualifies for the exemption.

(D) The owner or operator submits documentation to the **permitting agency** that the unit qualifies for the exemption.

(iv) *Municipal waste combustion units that combust only tires.* Units are exempt from this section if three requirements are met:

(A) The municipal waste combustion unit combusts a single-item waste stream of tires and no other municipal waste (the unit can cofire coal, fuel oil, natural gas, or other nonmunicipal solid waste).

(B) The owner or operator notifies the **permitting agency** that the unit qualifies for the exemption.

(C) The owner or operator submits documentation to the **permitting agency** that the unit qualifies for the exemption.

(v) *Hazardous waste combustion units.* Units are exempt from this section if the units have received a permit under section 3005 of the Solid Waste Disposal Act.

(vi) *Materials recovery units.* Units are exempt from this section if the units combust waste mainly to recover metals. Primary and secondary smelters may qualify for the exemption.

(vii) *Cofired units.* Units are exempt from this section if four requirements are met:

(A) The unit has a federally enforceable permit limiting municipal solid waste combustion to no more than 30 percent of total fuel input by weight.

(B) The owner or operator notifies the **permitting agency** that the unit qualifies for the exemption.

(C) The owner or operator submits a copy of the federally enforceable permit to the **permitting agency**.

(D) The owner or operator records the weights, each quarter, of municipal solid waste and of all other fuels combusted.

(viii) *Plastics/rubber recycling units.* Units are exempt from this section if four requirements are met:

(A) The pyrolysis/combustion unit is an integrated part of a plastics/rubber recycling unit as defined in 40 CFR 60.1940 (in effect on February 5, 2001).

(B) The owner or operator of the unit records the weight, each quarter, of plastics, rubber, and rubber tires processed.

(C) The owner or operator of the unit records the weight, each quarter, of feed stocks produced and marketed from chemical plants and petroleum refineries.

(D) The owner or operator of the unit keeps the name and address of the purchaser of the feed stocks.

(ix) *Units that combust fuels made from products of plastics/rubber recycling plants.* Units are exempt from this section if two requirements are met:

(A) The unit combusts gasoline, diesel fuel, jet fuel, fuel oils, residual oil, refinery gas, petroleum coke, liquified petroleum gas, propane, or butane produced by chemical plants or petroleum refineries that use feed stocks produced by plastics/rubber recycling units.

(B) The unit does not combust any other municipal solid waste.

(x) *Cement kilns.* Cement kilns that combust municipal solid waste are exempt.

(xi) *Air curtain incinerators.* If an air curtain incinerator as defined under 40 CFR 60.1910 (in effect on February 5, 2001) combusts 100 percent yard waste, then those units must only meet the requirements under 40 CFR 60.1910 through 60.1930 (in effect on February 5, 2001).

(d) Exceptions.

(i) Physical or operational changes to an existing municipal waste combustion unit made primarily to comply with this section do not qualify as a modification or reconstruction, as those terms are defined in 40 CFR 60.1940 (in effect on February 5, 2001).

(ii) Changes to an existing municipal waste combustion unit made on or after June 6, 2001, that meet the definition of modification or reconstruction, as those terms are defined in 40 CFR 60.1940 (in effect on February 5, 2001), mean the unit is considered a new unit and subject to WAC 173-400-115(2), which adopts 40 CFR Part 60, subpart AAAA (in effect on June 6, 2001).

(e) Municipal waste combustion units are divided into two subcategories based on the aggregate capacity of the municipal waste combustion plant as follows:

(i) Class I units. Class I units are small municipal waste combustion units that are located at municipal waste combustion plants with an aggregate plant combustion capacity greater than 250 tons per day of municipal solid waste. See the definition of "municipal waste combustion plant capacity" in 40 CFR 60.1940 (in effect on February 5, 2001) for the specification of which units are included in the aggregate capacity calculation.

(ii) Class II units. Class II units are small municipal waste combustion units that are located at municipal waste combustion plants with an aggregate plant combustion capacity less than or equal to 250 tons per day of municipal solid waste. See the definition of "municipal waste combustion plant capacity" in 40 CFR 60.1940 (in effect on February 5, 2001) for the specification of which units are included in the aggregate capacity calculation.

(f) Compliance option 1.

(i) A municipal solid waste combustion unit may choose to reduce, by the final compliance date of June 1, 2005, the maximum combustion capacity of the unit to less than 35 tons per day of municipal solid waste. The owner or operator must submit a final control plan and the notifications of achievement of increments of progress as specified in 40 CFR 60.1610 (in effect on February 5, 2001).

(ii) The final control plan must, at a minimum, include two items:

(A) A description of the physical changes that will be made to accomplish the reduction.

(B) Calculations of the current maximum combustion capacity and the planned maximum combustion capacity after the reduction. Use the equations specified in 40 CFR 60.1935 (d) and (e) (in effect on February 5, 2001) to calculate the combustion capacity of a municipal waste combustion unit.

(iii) A permit restriction or a change in the method of operation does not qualify as a reduction in capacity. Use the equations specified in 40 CFR 60.1935 (d) and (e) (in effect on February 5, 2001) to calculate the combustion capacity of a municipal waste combustion unit.

(g) Compliance option 2. The municipal waste combustion unit must comply with 40 CFR 60.1585 through 60.1905, and 60.1935 (in effect on February 5, 2001), which is adopted by reference.

(i) The rule contains these major components:

(A) Increments of progress towards compliance in 60.1585 through 60.1640;

(B) Good combustion practices - operator training in 60.1645 through 60.1670;

(C) Good combustion practices - operator certification in 60.1675 through 60.1685;

(D) Good combustion practices - operating requirements in 60.1690 through 60.1695;

(E) Emission limits in 60.1700 through 60.1710;

(F) Continuous emission monitoring in 60.1715 through 60.1770;

(G) Stack testing in 60.1775 through 60.1800;

(H) Other monitoring requirements in 60.1805 through 60.1825;

(I) Recordkeeping reporting in 60.1830 through 60.1855;

(J) Reporting in 60.1860 through 60.1905;

(K) Equations in 60.1935;

(L) Tables 2 through 8.

(ii) Exception to adopting the federal rule. For purposes of this section, each reference to the following is amended in the following manner:

(A) "State plan" in the federal rule means WAC 173-400-050(5).

(B) "You" in the federal rule means the owner or operator.

(C) "Administrator" includes the **permitting agency**.

(D) Table 1 in (h)(ii) of this subsection substitutes for Table 1 in the federal rule.

(E) "The effective date of the state plan approval" in the federal rule means December 6, 2002.

(h) Compliance schedule.

(i) Small municipal waste combustion units must achieve final compliance or cease operation not later than December 1, 2005.

(ii) Small municipal waste combustion units must comply with Table 1.

Table 1 Compliance Schedules and Increments of Progress

Affected units	Increment 1 (Submit final control plan)	Increment 2 (Award contracts)	Increment 3 (Begin on-site construction)	Increment 4 (Complete on-site construction)	Increment 5 (Final compliance)
All Class I units	August 6, 2003	April 6, 2004	October 6, 2004	October 6, 2005	November 6, 2005
All Class II units	September 6, 2003	Not applicable	Not applicable	Not applicable	May 6, 2005

(iii) Class I units must comply with these additional requirements:

(A) The owner or operator must submit the dioxins/furans stack test results for at least one test conducted during or after 1990. The stack test must have been conducted according to the procedures specified under 40 CFR 60.1790 (in effect on February 5, 2001).

(B) Class I units that commenced construction after June 26, 1987, must comply with the dioxins/furans and mercury limits specified in Tables 2 and 3 in 40 CFR Part 60, subpart BBBB (in effect on February 5, 2001) by the later of two dates:

(I) December 6, 2003; or

(II) One year following the issuance of an order of approval (revised construction permit or operation permit) if a permit modification is required.

(i) Air operating permit. Applicability to chapter 173-401 WAC, the air operating permit regulation, begins on July 1, 2002. See WAC 173-401-500 for the permit application requirements and deadlines.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-050, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 91-05-064 (Order 90-06), § 173-400-050, filed 2/19/91, effective 3/22/91. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-050, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-050, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-050, filed 5/8/79; Order DE 76-38, § 173-400-050, filed 12/21/76. Formerly WAC 18-04-050.]

WAC 173-400-060 Emission standards for general process units. General process units are required to meet all applicable provisions of WAC 173-400-040 and, no **person** shall cause or permit the **emission** of **particulate** material from any general process operation in excess of 0.23 grams per dry cubic meter at **standard conditions** (0.1 grain/dscf) of exhaust gas. EPA test methods (in effect on February 20, 2001) from 40 CFR Parts 51, 60, 61, and 63 and any other approved test procedures which are contained in **ecology's** *"**Source** Test Manual - Procedures For Compliance Testing"* as of July 12, 1990, will be used to determine compliance.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-060, filed 8/15/01, effective 9/15/01. Statutory Authority: [RCW 70.94.331, 70.94.510 and chapter 70.94 RCW.] 00-23-130 (Order 98-27), § 173-400-060, filed 11/22/00, effective 12/23/00. Statutory Authority: RCW 70.94.860, 70.94.510 and 70.94.331. 98-15-129 (Order 98-04), § 173-400-060, filed 7/21/98, effective 8/21/98. Statutory Authority: Chapter 70.94 RCW. 91-05-064 (Order 90-06), § 173-400-060, filed 2/19/91, effective 3/22/91. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-060, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-060, filed 8/20/80; Order DE 76-38, § 173-400-060, filed 12/21/76. Formerly WAC 18-04-060.]

WAC 173-400-070 Emission standards for certain source categories. Ecology finds that the reasonable regulation of **sources** within certain categories requires separate standards applicable to such categories. The standards set forth in this section shall be the maximum allowable standards for **emissions units** within the categories listed. Except as specifically provided in this section, such **emissions units** shall not be required to meet the provisions of WAC 173-400-040, 173-400-050 and 173-400-060.

(1) **Wigwam burners.**

(a) All wigwam burners shall meet all provisions of WAC 173-400-040 (2), (3), (4), (5), (6), and (7).

(b) All wigwam burners shall use **RACT**. All **emissions units** shall be operated and maintained to minimize **emissions**. These requirements may include a controlled tangential vent overfire air system, an adequate underfire system, elimination of all unnecessary openings, a controlled feed and other modifications determined necessary by **ecology** or the **authority**.

(c) It shall be unlawful to install or increase the existing use of any burner that does not meet all requirements for new **sources** including those requirements specified in WAC 173-400-040 and 173-400-050, except operating hours.

(d) **Ecology** may establish additional requirements for wigwam burners located in sensitive areas as defined by chapter 173-440 WAC. These requirements may include but shall not be limited to:

(i) A requirement to meet all provisions of WAC 173-400-040 and 173-400-050. Wigwam burners will be considered to be in compliance if they meet the requirements contained in WAC 173-400-040(1). An exception is made for a startup period not to exceed thirty minutes in any eight consecutive hours.

(ii) A requirement to apply **BACT**.

(iii) A requirement to reduce or eliminate **emissions** if **ecology** establishes that such **emissions** unreasonably interfere with the use and enjoyment of the property of others or are a cause of violation of **ambient air standards**.

(2) **Hog fuel boilers.**

(a) Hog fuel boilers shall meet all provisions of WAC 173-400-040 and 173-400-050(1), except that **emissions** may exceed twenty percent **opacity** for up to fifteen consecutive minutes once in any eight hours. The intent of this provision is to permit the soot blowing and grate cleaning necessary to the operation of these units. This practice is to be scheduled for the same specific times each day and **ecology** or the **authority** shall be notified of the schedule or any changes.

(b) All hog fuel boilers shall utilize **RACT** and shall be operated and maintained to minimize **emissions**.

(3) **Orchard heating.**

(a) Burning of rubber materials, asphaltic products, crankcase oil or petroleum wastes, plastic, or garbage is prohibited.

(b) It is unlawful to burn any material or operate any orchard-heating device that causes a visible **emission** exceeding twenty percent **opacity**, except during the first thirty minutes after such device or material is ignited.

(4) **Grain elevators.**

Any grain elevator which is primarily classified as a **materials handling** operation shall meet all the provisions of WAC 173-400-040 (2), (3), (4), and (5).

(5) **Catalytic cracking units.**

(a) All existing catalytic cracking units shall meet all provisions of WAC 173-400-040 (2), (3), (4), (5), (6), and (7) and:

(i) No **person** shall cause or permit the **emission** for more than three minutes, in any one hour, of an **air contaminant** from any catalytic cracking unit which at the **emission** point, or within a reasonable distance of the **emission** point, exceeds forty percent **opacity**.

(ii) No **person** shall cause or permit the **emission** of particulate material in excess of 0.46 grams per dry cubic meter at standard conditions (0.20 grains/dscf) of exhaust gas.

(b) All new catalytic cracking units shall meet all provisions of WAC 173-400-115.

(6) **Other wood waste burners.**

(a) Wood waste burners not specifically provided for in this section shall meet all provisions of WAC 173-400-040.

(b) Such wood waste burners shall utilize **RACT** and shall be operated and maintained to minimize **emissions**.

(7) **Sulfuric acid plants.**

No **person** shall cause to be discharged into the atmosphere from a sulfuric acid plant, any gases which contain acid mist, expressed as H_2SO_4, in excess of 0.15 pounds per ton of acid produced. Sulfuric acid production shall be expressed as one hundred percent H_2SO_4.

(8) **Sewage sludge incinerators.** Standards for the incineration of sewage sludge found in 40 CFR Part 503 subparts A (General Provisions) and E (Incineration) in effect on July 1, 1997, are adopted by reference.

(9) **Municipal solid waste landfills constructed, reconstructed, or modified before May 30, 1991.** A municipal solid waste landfill (MSW landfill) is an entire disposal facility in a contiguous geographical space where household waste is placed in or on the land. A MSW landfill may also receive other types of waste regulated under Subtitle D of the Federal Recourse Conservation and Recovery Act including the following: Commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. A MSW landfill may be either publicly or privately owned. A MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion. All references in this subsection to 40 CFR Part 60 rules mean those rules in effect on July 1, 2000.

(a) Applicability. These rules apply to each MSW landfill constructed, reconstructed, or modified before May 30, 1991; and the MSW landfill accepted waste at any time since November 8, 1987 or the landfill has additional capacity for future waste deposition. (See WAC 173-400-115(2) for the requirements for MSW landfills constructed, reconstructed, or modified on or after May 30, 1991.) Terms in this subsection have the meaning given them in 40 CFR 60.751, except that every use of the word "administrator" in the federal rules referred to in this subsection includes the **"permitting agency."**

(b) Exceptions. Any physical or operational change to an MSW landfill made solely to comply with these rules is not considered a modification or rebuilding.

(c) Standards for MSW landfill emissions.

(i) A MSW landfill having a design capacity less than 2.5 million megagrams or 2.5 million cubic meters must comply with the requirements of 40 CFR 60.752(a) in addition to the applicable requirements specified in this section.

(ii) A MSW landfill having design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must comply with the requirements of 40 CFR 60.752(b) in addition to the applicable requirements specified in this section.

(d) Recordkeeping and reporting. A MSW landfill must follow the recordkeeping and reporting requirements in 40 CFR 60.757 (submittal of an initial design capacity report) and 40 CFR 60.758 (recordkeeping requirements), as applicable, except as provided for under (d)(i) and (ii).

(i) The initial design capacity report for the facility is due before September 20, 2001.

(ii) The initial nonmethane organic compound (NMOC) emissions rate report is due before September 20, 2001.

(e) Test methods and procedures.

(i) A MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters must calculate the landfill nonmethane organic compound emission rates following the procedures listed in 40 CFR 60.754, as applicable, to determine whether the rate equals or exceeds 50 megagrams per year.

(ii) Gas collection and control systems must meet the requirements in 40 CFR 60.752 (b)(2)(ii) through the following procedures:

(A) The systems must follow the operational standards in 40 CFR 60.753.

(B) The systems must follow the compliance provisions in 40 CFR 60.755 (a)(1) through (a)(6) to determine whether the system is in compliance with 40 CFR 60.752 (b)(2)(ii).

(C) The system must follow the applicable monitoring provisions in 40 CFR 60.756.

(f) Conditions. Existing MSW landfills that meet the following conditions must install a gas collection and control system:

(i) The landfill accepted waste at any time since November 8, 1987, or the landfill has additional design capacity available for future waste deposition;

(ii) The landfill has design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exception values. Any density conversions shall be documented and submitted with the report; and

(iii) The landfill has a nonmethane organic compound (NMOC) emission rate of 50 megagrams per year or greater.

(g) Change in conditions. After the adoption date of this rule, a landfill that meets all three conditions in (e) of this subsection must comply with all the requirements of this section within thirty months of the date when the conditions were met. This change will usually occur because the NMOC emission rate equaled or exceeded the rate of 50 megagrams per year.

(h) Gas collection and control systems.

(i) Gas collection and control systems must meet the requirements in 40 CFR 60.752 (b)(2)(ii).

(ii) The design plans must be prepared by a licensed professional engineer and submitted to the **permitting agency** within one year after the adoption date of this section.

(iii) The system must be installed within eighteen months after the submittal of the design plans.

(iv) The system must be operational within thirty months after the adoption date of this section.

(v) The emissions that are collected must be controlled in one of three ways:

(A) An open flare designed and operated according to 40 CFR 60.18;

(B) A control system designed and operated to reduce NMOC by 98 percent by weight; or

(C) An enclosed combustor designed and operated to reduce the outlet NMOC concentration to 20 parts per million as hexane by volume, dry basis to three percent oxygen, or less.

(i) Air operating permit.

(i) A MSW landfill that has a design capacity less than 2.5 million megagrams or 2.5 million cubic meters on January 7, 2000, is not subject to the air operating permit regulation, unless the landfill is subject to chapter 173-401 WAC for some other reason. If the design capacity of an exempted MSW landfill subsequently increases to equal or exceed 2.5 million megagrams or 2.5 million cubic meters by a change that is not a modification or reconstruction, the landfill is subject to chapter 173-401 WAC on the date the amended design capacity report is due.

(ii) A MSW landfill that has a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters on January 7, 2000, is subject to chapter 173-401 WAC beginning on the effective date of this section. (Note: Under 40 CFR 62.14352(e), an applicable MSW landfill must have submitted its application so that by April 6, 2001, the permitting agency was able to determine that it was timely and complete. Under 40 CFR 70.7(b), no source may operate after the time that it is required to submit a timely and complete application.)

(iii) When a MSW landfill is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit for the landfill if the landfill is not subject to chapter 173-401 WAC for some other reason and if either of the following conditions are met:

(A) The landfill was never subject to the requirement for a control system under 40 CFR 62.14353; or

(B) The landfill meets the conditions for control system removal specified in 40 CFR 60.752 (b)(2)(v).

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-070, filed 8/15/01, effective 9/15/01. Statutory Authority: [RCW 70.94.331, 70.94.510 and chapter 70.94 RCW.] 00-23-130 (Order 98-27), § 173-400-070, filed 11/22/00, effective 12/23/00. Statutory Authority: RCW 70.94.860, 70.94.510 and 70.94.331. 98-15-129 (Order 98-04), § 173-400-070, filed 7/21/98, effective 8/21/98. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-070, filed 9/13/96, effective 10/14/96; 91-05-064 (Order 90-06), § 173-400-070, filed 2/19/91, effective 3/22/91. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-070, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-070, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-070, filed 5/8/79; Order DE 76-38, § 173-400-070, filed 12/21/76. Formerly WAC 18-04-070.]

WAC 173-400-075 Emission standards for sources emitting hazardous air pollutants. (1) **National emission standards for hazardous air pollutants (NESHAPs).** 40 CFR Part 61 and Appendices in effect on February 20, 2001, is adopted by reference. The term "administrator" in 40 CFR Part 61 includes the **permitting agency**.

(2) The **permitting agency** may conduct source tests and require access to records, books, files, and other information specific to the control, recovery, or release of those pollutants regulated under 40 CFR Parts 61, 63 and/or 65 in order to determine the status of compliance of sources of these contaminants and to carry out its enforcement responsibilities.

(3) **Source** testing, monitoring, and analytical methods for sources of hazardous air pollutants must conform with the requirements of 40 CFR Parts 61, 63 and/or 65.

(4) This section does not apply to any source operating under a waiver granted by EPA or an exemption granted by the president of the United States.

(5) **Maximum achievable control technology (MACT) standards.** MACT standards are officially known as **National Emission Standards for Hazardous Air Pollutants for Source Categories**.

(a) Adopt by reference.

(i) 40 CFR Part 63 and Appendices in effect on February 20, 2001, is adopted by reference. Exceptions are listed in (5)(b) of this section.

(ii) 40 CFR Part 63, subpart MM (kraft, soda, sulfite, and stand-alone semi-chemical pulp mills), in effect on March 13, 2001, is adopted by reference.

The following list is provided for informational purposes:

Subpart A	General Provisions
Subpart B	Requirements for Control Technology Determinations for Major Sources According to Section 112(g) and 112(j) of the federal Clean Air Act
Subpart D	Regulations Governing Compliance Extensions for Early Reductions of Hazardous Air Pollutants
Subpart F	NESHAPs for the Synthetic Organic Chemical Manufacturing Industry (a/k/a HON)
Subpart G	NESHAPs for the Synthetic Organic Chemical Manufacturing Industry: Process Vents, Storage Vessels, Transfer Operations, and Wastewater
Subpart H	NESHAPs for the Synthetic Organic Chemical Manufacturing Industry: Equipment Leaks
Subpart I	NESHAPs for Processes Subject to the Negotiated Regulation for Equipment Leaks
Subpart L	NESHAPs for Coke Oven Batteries: Charging, topside and door leaks
Subpart M	NESHAP for PCE Dry-Cleaners - as it applies to major sources
Subpart N	NESHAPs for Chromium Electroplating and Anodizing
Subpart O	NESHAPs for Commercial Ethylene Oxide Sterilizers
Subpart Q	NESHAPs for Industrial Process Cooling Towers
Subpart R	NESHAPs for Gasoline Distribution/Marketing (stage 1)
Subpart S	NESHAP for the Pulp and Paper Industry
Subpart T	NESHAPs for Halogenated Solvent Cleaning Machines
Subpart U	NESHAPs for Group I Polymers and Resins
Subpart W	NESHAPs for Epoxy Resins Production and Non-Nylon Polyamides Production
Subpart X	NESHAPs for the Secondary Lead Smelters
Subpart Y	NESHAP for Marine Tank Vessel Loading Operations
Subpart AA	NESHAP for Phosphoric Acid Manufacturing Plants
Subpart BB	NESHAP for Phosphate Fertilizers Production Plants
Subpart CC	NESHAPs for the Petroleum Refinery Industry
Subpart DD	NESHAPs from Off-site Waste and Recovery Treatment Operation
Subpart EE	NESHAPs for Magnetic Tape Manufacturing Operations
Subpart GG	NESHAPs for the Aerospace Manufacturing and Rework Facilities
Subpart HH	NESHAP for Oil and Natural Gas Production Facilities
Subpart II	NESHAPs for Shipbuilding and Repair (surface coating)
Subpart JJ	NESHAPs for Wood Furniture Manufacturing Operations
Subpart KK	NESHAPs for Printing and Publishing Industry
Subpart LL	NESHAP for Primary Aluminum Reduction Plants
Subpart MM	NESHAP for Kraft, Soda, Sulfite, and Stand-Alone Semi-chemical Pulp Mills
Subpart OO	NESHAPs for Tanks - Level 1
Subpart PP	NESHAPs for Containers
Subpart QQ	NESHAPs for Surface Impoundments
Subpart RR	NESHAPs for Individual Drain Systems
Subpart SS	NESHAP for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process
Subpart TT	NESHAP for Equipment Leaks - Control Level 1
Subpart UU	NESHAP for Equipment Leaks - Control Level 2 Standards
Subpart VV	NESHAPs for Oil-Water Separators and Organic Water Separators
Subpart WW	NESHAP for Storage Vessels (Tanks) - Control Level 2
Subpart YY	NESHAP for Source Categories: Generic MACT
Subpart CCC	NESHAP for Steel Pickling - HCL Process Facilities and Hydrochloric Acid Regeneration Plants
Subpart DDD	NESHAP for Mineral Wool Production
Subpart EEE	NESHAP for Hazardous Waste Combustors
Subpart GGG	NESHAP for Pharmaceuticals Production
Subpart HHH	NESHAP from Natural Gas Transmission and Storage Facilities
Subpart III	NESHAP for Flexible Polyurethane Foam Production
Subpart JJJ	NESHAP for Group IV Polymers and Resins
Subpart LLL	NESHAP from the Portland Cement Manufacturing Industry
Subpart MMM	NESHAP for Pesticide Active Ingredient Production
Subpart NNN	NESHAP for Wool Fiberglass Manufacturing
Subpart OOO	NESHAP for Manufacture of Amino/Phenolic Resins
Subpart PPP	NESHAP from Polyether Polyols Production

Subpart RRR	NESHAP for Secondary Aluminum Production. Under WAC 173-401-300 (1)(d), area sources are deferred from the air operating permit regulation until December 4, 2004
Subpart TTT	NESHAP for Primary Smelting
Subpart VVV	NESHAP from Publicly Owned Treatment Works
Subpart XXX	NESHAP for Ferroalloys Production: Ferromanganese and Silicomanganese
Appendix A	Test Methods (Amended 10/17/00)
Appendix B	Sources Defined for Early Reduction Provisions
Appendix C	Determination of the Fraction Biodegraded in a Biological Treatment Unit
Appendix D	Alternative Validation procedure for EPA Waste and Wastewater Methods
Appendix E	Monitoring Procedures for Nonthoroughly Mixed Open Biological Treatment Systems at Kraft Pulp Mills Under Unsafe Sampling Conditions

(b) Exceptions to adopting 40 CFR Part 63 by reference.

(i) The term "administrator" in 40 CFR Part 63 includes the **permitting agency**.

(ii) The following subparts of 40 CFR Part 63 are not adopted by reference:

(A) Subpart C: List of Hazardous Air Pollutants, Petition Process, Lesser Quantity Designations, source Category List.

(B) Subpart E: Approval of State Programs and Delegation of Federal Authorities.

(C) Subpart M: National Perchloroethylene Emission Standards for Dry Cleaning Facilities as it applies to nonmajor sources.

(6) **Consolidated requirements for the synthetic organic chemical manufacturing industry.** 40 CFR Part 65, in effect on December 14, 2000, is adopted by reference.

(7) **Emission Standards for Perchloroethylene Dry Cleaners.**

(a) **Applicability.**

(i) This section applies to all dry cleaning systems that use perchloroethylene (PCE). Table 1 divides dry cleaning facilities into 3 regulatory **source categories** by the type of equipment they use and the volume of PCE purchased. Each dry cleaning system must follow the applicable requirements in Table 1:

TABLE 1. PCE Dry Cleaner Source Categories

Dry cleaning facilities with:	Small area source purchases less than:	Large area source purchases between:	Major source purchases more than:
(1) Only Dry-to-Dry Machines	140 gallons PCE/yr	140-2,100 gallons PCE/yr	2,100 gallons PCE/yr
(2) Only Transfer Machines	200 gallons PCE/yr	200-1,800 gallons PCE/yr	1,800 gallons PCE/yr
(3) Both Dry-to-Dry and Transfer Machines	140 gallons PCE/yr	140-1,800 gallons PCE/yr	1,800 gallons PCE/yr

(ii) Major sources. In addition to the requirements in this section, a dry cleaning system that is considered a major source according to Table 1 must follow the federal requirements for major sources in 40 CFR Part 63, Subpart M (in effect on July 1, 2000).

(b) **Operations and maintenance record.**

(i) Each dry cleaning facility must keep an operations and maintenance record that is available upon request.

(ii) The information in the operations and maintenance record must be kept on-site for five years.

(iii) The operations and maintenance record must contain the following information:

(A) Inspection: The date and result of each inspection of the dry cleaning system. The inspection must note the condition of the system and the time any leaks were observed.

(B) Repair: The date, time, and result of each repair of the dry cleaning system.

(C) Refrigerated condenser information. If you have a refrigerated condenser, enter this information:

(I) The air temperature at the inlet of the refrigerated condenser;

(II) The air temperature at the outlet of the refrigerated condenser;

(III) The difference between the inlet and outlet temperature readings; and

(IV) The date the temperature was taken.

(D) Carbon adsorber information. If you have a carbon adsorber, enter this information:

(I) The concentration of PCE in the exhaust of the carbon adsorber; and

(II) The date the concentration was measured.

(E) A record of the volume of PCE purchased each month must be entered by the first of the following month;

(F) A record of the total amount of PCE purchased over the previous twelve months must be entered by the first of each month;

(G) All receipts of PCE purchases; and

(H) A record of any pollution prevention activities that have been accomplished.

(c) **General operations and maintenance requirements.**

(i) Drain cartridge filters in their housing or other sealed container for at least twenty-four hours before discarding the cartridges.

(ii) Close the door of each dry cleaning machine except when transferring articles to or from the machine.

(iii) Store all PCE, and wastes containing PCE, in a closed container with no perceptible leaks.

(iv) Operate and maintain the dry cleaning system according to the manufacturer's specifications and recommendations.

(v) Keep a copy on-site of the design specifications and operating manuals for all dry cleaning equipment.

(vi) Keep a copy on-site of the design specifications and operating manuals for all emissions control devices.

(vii) Route the PCE gas-vapor stream from the dry cleaning system through the applicable equipment in Table 2:

TABLE 2. Minimum PCE Vapor Vent Control Requirements

Small area source	Large area source	Major source
Refrigerated condenser for all machines installed after September 21, 1993.	Refrigerated condenser for all machines.	Refrigerated condenser with a carbon adsorber for all machines installed after September 21, 1993.

(d) **Inspection.**

(i) The owner or operator must inspect the dry cleaning system at a minimum following the requirements in Table 3:

TABLE 3. Minimum Inspection Frequency

Small area source	Large area source	Major source
Once every 2 weeks.	Once every week.	Once every week.

(ii) An inspection must include an examination of these components for condition and perceptible leaks:

(A) Hose and pipe connections, fittings, couplings, and valves;

(B) Door gaskets and seatings;

(C) Filter gaskets and seatings;

(D) Pumps;

(E) Solvent tanks and containers;

(F) Water separators;

(G) Muck cookers;

(H) Stills;

(I) Exhaust dampers; and

(J) Cartridge filter housings.

(iii) The dry cleaning system must be inspected while it is operating.

(iv) The date and result of each inspection must be entered in the operations and maintenance record at the time of the inspection.

(e) **Repair.**

(i) Leaks must be repaired within twenty-four hours of detection if repair parts are available.

(ii) If repair parts are unavailable, they must be ordered within two working days of detecting the leak.

(iii) Repair parts must be installed as soon as possible, and no later than five working days after arrival.

(iv) The date and time each leak was discovered must be entered in the operations and maintenance record.

(v) The date, time, and result of each repair must be entered in the operations and maintenance record at the time of the repair.

(f) **Requirements for systems with refrigerated condensers.** A dry cleaning system using a refrigerated condenser must meet all of the following requirements:

(i) Outlet air temperature.

(A) Each week the air temperature sensor at the outlet of the refrigerated condenser must be checked.

(B) The air temperature at the outlet of the refrigerated condenser must be less than or equal to 45°F (7.2°C) during the cool-down period.

(C) The air temperature must be entered in the operations and maintenance record manual at the time it is checked.

(D) The air temperature sensor must meet these requirements:

(I) An air temperature sensor must be permanently installed on a dry-to-dry machine, dryer or reclaimer at the outlet of the refrigerated condenser. The air temperature sensor must be installed by September 23, 1996, if the dry cleaning system was constructed before December 9, 1991.

(II) The air temperature sensor must be accurate to within 2°F (1.1°C).

(III) The air temperature sensor must be designed to measure at least a temperature range from 32°F (0°C) to 120°F (48.9°C); and

(IV) The air temperature sensor must be labeled "RC outlet."

(ii) Inlet air temperature.

(A) Each week the air temperature sensor at the inlet of the refrigerated condenser installed on a washer must be checked.

(B) The inlet air temperature must be entered in the operations and maintenance record at the time it is checked.

(C) The air temperature sensor must meet these requirements:

(I) An air temperature sensor must be permanently installed on a washer at the inlet of the refrigerated condenser. The air temperature sensor must be installed by September 23, 1996, if the dry cleaning system was constructed before December 9, 1991.

(II) The air temperature sensor must be accurate to within 2 °F (1.1°C).

(III) The air temperature sensor must be designed to measure at least a temperature range from 32°F (0°C) to 120°F (48.9°C).

(IV) The air temperature sensor must be labeled "RC inlet."

(iii) For a refrigerated condenser used on the washer unit of a transfer system, the following are additional requirements:

(A) Each week the difference between the air temperature at the inlet and outlet of the refrigerated condenser must be calculated.

(B) The difference between the air temperature at the inlet and outlet of a refrigerated condenser installed on a washer must be greater than or equal to 20°F (11.1°C).

(C) The difference between the inlet and outlet air temperature must be entered in the operations and maintenance record each time it is checked.

(iv) A converted machine with a refrigerated condenser must be operated with a diverter valve that prevents air drawn into the dry cleaning machine from passing through the refrigerated condenser when the door of the machine is open;

(v) The refrigerated condenser must not vent the air-PCE gas-vapor stream while the dry cleaning machine drum is rotating or, if installed on a washer, until the washer door is opened; and

(vi) The refrigerated condenser in a transfer machine may not be coupled with any other equipment.

(g) **Requirements for systems with carbon adsorbers.** A dry cleaning system using a carbon adsorber must meet all of the following requirements:

(i) Each week the concentration of PCE in the exhaust of the carbon adsorber must be measured at the outlet of the carbon adsorber using a colorimetric detector tube.

(ii) The concentration of PCE must be written in the operations and maintenance record each time the concentration is checked.

(iii) If the dry cleaning system was constructed before December 9, 1991, monitoring must begin by September 23, 1996.

(iv) The colorimetric tube must meet these requirements:

(A) The colorimetric tube must be able to measure a concentration of 100 parts per million of PCE in air.

(B) The colorimetric tube must be accurate to within 25 parts per million.

(C) The concentration of PCE in the exhaust of the carbon adsorber must not exceed 100 ppm while the dry cleaning machine is venting to the carbon adsorber at the end of the last dry cleaning cycle prior to desorption of the carbon adsorber.

(v) If the dry cleaning system does not have a permanently fixed colorimetric tube, a sampling port must be provided within the exhaust outlet of the carbon adsorber. The sampling port must meet all of these requirements:

(A) The sampling port must be easily accessible;

(B) The sampling port must be located 8 stack or duct diameters downstream from a bend, expansion, contraction or outlet; and

(C) The sampling port must be 2 stack or duct diameters upstream from a bend, expansion, contraction, inlet or outlet.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-075, filed 8/15/01, effective 9/15/01. Statutory Authority: [RCW 70.94.331, 70.94.510 and chapter 70.94 RCW.] 00-23-130 (Order 98-27), § 173-400-075, filed 11/22/00, effective 12/23/00. Statutory Authority: RCW 70.94.860, 70.94.510 and 70.94.331. 98-15-129 (Order 98-04), § 173-400-075, filed 7/21/98, effective 8/21/98. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-075, filed 9/13/96, effective 10/14/96; 93-05-044 (Order 92-34), § 173-400-075, filed 2/17/93, effective 3/20/93; 91-05-064 (Order 90-06), § 173-400-075, filed 2/19/91, effective 3/22/91. Statutory Authority: RCW 70.94.331, 70.94.395 and 70.94.510. 85-06-046 (Order 84-48), § 173-400-075, filed 3/6/85. Statutory Authority: Chapter 70.94 RCW. 84-10-019 (Order DE 84-8), § 173-400-075, filed 4/26/84. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-075, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-075, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-075, filed 5/8/79; Order DE 76-38, § 173-400-075, filed 12/21/76. Formerly WAC 18-04-075.]

WAC 173-400-100 Source classifications. (1) **Source classification list.** In counties without a local **authority**, the owner or operator of each **source** within the following **source categories** shall register the **source** with **ecology**:

(a) Agricultural chemical facilities engaging in the manufacturing of liquid or dry fertilizers or pesticides;

(b) Agricultural drying and dehydrating operations;

(c) Any category of **stationary sources** subject to a **new source performance standard (NSPS)** under 40 CFR Part 60, other than Subpart AAA (Standards of Performance for New Residential Wood Heaters);

(d) Any **source** subject to a **National Emission Standard for Hazardous Air Pollutants (NESHAP)** under 40 CFR Part 61, other than Subpart M (National Emission Standard for Asbestos);

(e) Any **source** subject to a **National Emission Standard for Hazardous Air Pollutants for Source Categories** (Maximum Achievable Control Technology (MACT) standard) under 40 CFR Part 63;

(f) Any **source, stationary source** or **emission unit** with an emission rate defined as **"significant"** in WAC 173-400-112 and/or 173-400-113, as applicable;

(g) Asphalt and asphalt products production facilities;

(h) Brick and clay manufacturing plants, including tiles and ceramics;

(i) Casting facilities and foundries, ferrous and nonferrous;

(j) Cattle feedlots with operational facilities which have an inventory of one thousand or more cattle in operation between June 1 and October 1, where vegetation forage growth is not sustained over the majority of the lot during the normal growing season;

(k) Chemical manufacturing plants;

(l) Composting operations, including commercial, industrial and municipal, but exempting residential composting activities;

(m) Concrete product manufacturers and ready mix and premix concrete plants;

(n) Crematoria or animal carcass **incinerators**;

(o) Dry cleaning plants;

(p) **Materials handling** and transfer facilities that generate fine particulate, which may include pneumatic conveying, cyclones, baghouses, and industrial housekeeping vacuuming systems that exhaust to the atmosphere;

(q) Flexible vinyl and urethane coating and printing operations;

(r) Grain, seed, animal feed, legume, and flour processing operations, and handling facilities;

(s) Hay cubers and pelletizers;

(t) Hazardous waste treatment and disposal facilities;

(u) Ink manufacturers;

(v) Insulation fiber manufacturers;

(w) Landfills, active and inactive, including covers, gas collections systems or flares;

(x) Metal plating and anodizing operations;

(y) Metallic and nonmetallic mineral processing plants, including rock crushing plants;

(z) Mills such as lumber, plywood, shake, shingle, woodchip, veneer operations, dry kilns, pulpwood insulating board, or any combination thereof;

(aa) Mineralogical processing plants;

(bb) Other metallurgical processing plants;

(cc) Paper manufacturers;

(dd) Petroleum refineries;

(ee) Plastics and fiberglass product fabrication facilities;

(ff) Rendering plants;

(gg) Soil and groundwater remediation projects;

(hh) Surface coating manufacturers;

(ii) Surface coating operations including: Automotive, metal, cans, pressure sensitive tape, labels, coils, wood, plastic, rubber, glass, paper and other substrates;

(jj) Synthetic fiber production facilities;

(kk) Synthetic organic chemical manufacturing industries;

(ll) Tire recapping facilities;

(mm) Wastewater treatment plants;

(nn) Any **source** that has elected to opt-out of the operating permit program by limiting its potential-to-emit **(synthetic minor)** or is required to report periodically to demonstrate nonapplicability to **EPA** requirements under Sections 111 or 112 of Federal Clean Air Act.

(2) **Equipment classification list.** In counties without a local **authority**, the owner or operator of the following equipment shall register the **source** with **ecology**:

(a) Boilers, all solid and liquid fuel burning boilers with the exception of those utilized for residential heating;

(b) Boilers, all gas fired boilers above 10 million British thermal units per hour input;

(c) Chemical concentration evaporators;

(d) Degreasers of the cold or vapor type in which more than five percent of the solvent is comprised of halogens or such aromatic hydrocarbons as benzene, ethylbenzene, toluene or xylene;

(e) Ethylene oxide (ETO) sterilizers;

(f) Flares utilized to combust any gaseous material;

(g) Fuel burning equipment with a heat input of more than 1 million Btu per hour; except heating, air conditioning systems, or ventilating systems not designed to remove contaminants generated by or released from equipment;

(h) **Incinerators** designed for a capacity of one hundred pounds per hour or more;

(i) Ovens, burn-out and heat-treat;

(j) Stationary internal combustion engines and turbines rated at five hundred horsepower or more;

(k) Storage tanks for organic liquids associated with commercial or industrial facilities with capacities equal to or greater than 40,000 gallons;

(l) Vapor collection systems within commercial or industrial facilities;

(m) Waste oil burners above 0.5 mm Btu heat output;

(n) Woodwaste **incinerators**;

(o) Commercial and industrial solid waste incineration units subject to WAC 173-400-050(4);

(p) Small municipal waste combustion units subject to WAC 173-400-050(5).

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-100, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 95-07-126 (Order 93-40), § 173-400-100, filed 3/22/95, effective 4/22/95; 93-18-007 (Order 93-03), § 173-400-100, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-100, filed 2/19/91, effective 3/22/91. Statutory Authority: RCW 70.94.331, 70.94.395 and 70.94.510. 85-06-046 (Order 84-48), § 173-400-100, filed 3/6/85. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-100, filed 4/15/83. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-100, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-100, filed 5/8/79; Order DE 76-38, § 173-400-100, filed 12/21/76. Formerly WAC 18-04-100.]

WAC 173-400-102 Scope of registration and reporting requirements. (1) **Administrative options.** A **source** in a listed **source category** that is located in a county without an active local **authority** will be addressed in one of several ways:

(a) The **source** will be required to register and report once each year. The criteria for identifying these **sources** are listed in subsection (2) of this section.

(b) The **source** will be required to register and report once every three years. The criteria for identifying these **sources** are listed in subsection (3) of this section.

(c) The **source** will be exempted from registration program requirements. The criteria for identifying these **sources** are listed in subsection (4) of this section.

(2) **Sources requiring annual registration and inspections.** An owner or operator of a **source** in a listed **source category** that meets any of the following criteria shall register and report once each year:

(a) The **source** emits one or more **air pollutants** at rates greater than the emission rates listed in the definition of **"significant"** in WAC 173-400-112 and/or 173-400-113, as applicable;

(b) Annual registration and reporting is necessary to comply with federal reporting requirements or **emission standards**; or

(c) Annual registration and reporting is required in a **reasonably available control technology** determination for the **source category**; or

(d) The **director** of **ecology** determines that the **source** poses a potential threat to human health and the environment.

(3) **Sources requiring periodic registration and inspections.** An owner or operator of a **source** in a listed **source category** that meets any of the following criteria shall register and report once every three years:

(a) The **source** emits one or more **air pollutants** at rates greater than the emission rates listed in subsection (5) of this section and all **air pollutants** at rates less than the emission rates listed in the definition of **"significant"** in WAC 173-400-112 and/or 173-400-113, as applicable; or

(b) The **source** emits measurable amounts of one or more Class A or Class B **toxic air pollutants** listed in WAC 173-460-150 and 173-460-160.

(4) **Sources exempt from registration program requirements.** Any **source** included in a listed **source category** that is located in a county without an active local air **authority** shall not be required to register if **ecology** determines the following:

(a) The **source** emits pollutants below **emission** rates specified in subsection (5) of this section; and

(b) The **source** or **emission unit** does not emit measurable amounts of Class A or Class B **toxic air pollutants** specified in WAC 173-460-150 and 173-460-160.

(5) **Criteria for defining exempt sources.** The following emission rates will be used to identify listed **sources** that are exempt from registration program requirements:

Pollutant	Tons/Year
Carbon Monoxide	5.0
Nitrogen oxides	2.0
Sulfur dioxide	2.0
Particulate Matter (PM)	1.25
Fine Particulate **(PM10)**	0.75
Volatile organic compounds (VOC)	2.0
Lead	0.005

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-102, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 95-07-126 (Order 93-40), § 173-400-102, filed 3/22/95, effective 4/22/95.]

WAC 173-400-105 Records, monitoring, and reporting. The owner or operator of a **source** shall upon notification by the **director** of **ecology**, maintain records on the type and quantity of **emissions** from the **source** and other information deemed necessary to determine whether the **source** is in compliance with applicable **emission limitations** and control measures.

(1) **Emission** inventory. The owner(s) or operator(s) of any **air contaminant source** shall submit an inventory of **emissions** from the **source** each year. The inventory may include **stack** and fugitive **emissions** of **particulate matter, PM-10**, sulfur dioxide, carbon monoxide, **total reduced sulfur** compounds **(TRS)**, fluorides, lead, VOCs, and other contaminants, and shall be submitted (when required) no later than one hundred five days after the end of the calendar year. The owner(s) or operator(s) shall maintain records of information necessary to substantiate any reported **emissions**, consistent with the averaging times for the applicable standards.

(2) **Monitoring. Ecology** shall conduct a continuous surveillance program to monitor the quality of the ambient atmosphere as to concentrations and movements of **air contaminants**. As a part of this program, the **director** of **ecology** or an authorized representative may require any **source** under the jurisdiction of **ecology** to conduct **stack** and/or **ambient air** monitoring and to report the results to **ecology**.

(3) **Investigation of conditions.** Upon presentation of appropriate credentials, for the purpose of investigating conditions specific to the control, recovery, or release of **air contaminants** into the atmosphere, **personnel** from **ecology** or an **authority** shall have the power to enter at reasonable times upon any private or public property, excepting nonmultiple unit private dwellings housing one or two families.

(4) **Source testing.** To demonstrate compliance, **ecology** or the **authority** may conduct or require that a test be conducted of the **source** using approved **EPA** methods from 40 CFR parts 51, 60, 61 and 63 (in effect on February 20, 2001), or approved procedures contained in *"Source Test Manual - Procedures for Compliance Testing,"* state of Washington, department of **ecology**, as of July 12, 1990, on file at **ecology**. The operator of a **source** may be required to provide the necessary platform and sampling ports for **ecology** personnel or others to perform a test of an **emissions unit**. **Ecology** shall be allowed to obtain a sample from any **emissions unit**. The operator of the **source** shall be given an opportunity to observe the sampling and to obtain a sample at the same time.

(5) **Continuous monitoring and recording.** Owners and operators of the following categories of **sources** shall install, calibrate, maintain and operate equipment for continuously monitoring and recording those **emissions** specified.

(a) Fossil fuel-fired steam generators.

(i) **Opacity**, except where:

(A) Steam generator capacity is less than two hundred fifty million BTU per hour heat input; or

(B) Only gaseous fuel is burned.

(ii) Sulfur dioxide, except where steam generator capacity is less than two hundred fifty million BTU per hour heat input or if sulfur dioxide control equipment is not required.

(iii) Percent oxygen or carbon dioxide where such measurements are necessary for the conversion of sulfur dioxide continuous **emission** monitoring data.

(iv) General exception. These requirements do not apply to a fossil fuel-fired steam generator with an annual average **capacity factor** of less than thirty percent, as reported to the Federal Power Commission for calendar year 1974, or as otherwise demonstrated to **ecology** or the **authority** by the owner(s) or operator(s).

(b) **Sulfuric acid plants.** Sulfur dioxide where production capacity is more than three hundred tons per day, expressed as one hundred percent acid, except for those facilities where conversion to sulfuric acid is utilized primarily as a means of preventing **emissions** to the atmosphere of sulfur dioxide or other sulfur compounds.

(c) Fluid bed catalytic cracking units catalyst regenerators at petroleum refineries. **Opacity** where fresh feed capacity is more than twenty thousand barrels per day.

(d) Wood residue fuel-fired steam generators.

(i) **Opacity**, except where steam generator capacity is less than one hundred million BTU per hour heat input.

(ii) Continuous monitoring equipment. The requirements of (e) of this subsection do not apply to wood residue fuel-fired steam generators, but continuous monitoring equipment required by (d) of this subsection shall be subject to approval by **ecology**.

(e) Owners and operators of those **sources** required to install continuous monitoring equipment under this subsection shall demonstrate to **ecology** or the **authority**, compliance with the equipment and performance specifications and observe the reporting requirements contained in 40 CFR Part 51, Appendix P, Sections 3, 4 and 5 (in effect on October 17, 2000).

(f) Special considerations. If for reason of physical plant limitations or extreme economic situations, **ecology** determines that continuous monitoring is not a reasonable requirement, alternative monitoring and reporting procedures will be established on an individual basis. These will generally take the form of **stack** tests conducted at a frequency sufficient to establish the **emission** levels over time and to monitor deviations in these levels.

(g) Exemptions. This subsection (5) does not apply to any **source** which is:

(i) Subject to a **new source performance standard**. These **sources** will be governed by WAC 173-400-115.

(ii) Not subject to an applicable **emission standard**.

(h) Monitoring system malfunctions. A **source** may be temporarily exempted from the monitoring and reporting requirements of this chapter during periods of monitoring system malfunctions provided that the **source** owner(s) or operator(s) shows to the satisfaction of **ecology** or the **authority** that the malfunction was unavoidable and is being repaired as expeditiously as practicable.

(6) Change in raw materials or fuels for **sources** not subject to requirements of the operating permit program. Any change or series of changes in raw material or fuel which will result in a cumulative increase in **emissions** of sulfur dioxide of forty tons per year or more over that stated in the initial inventory required by subsection (1) of this section shall require the submittal of sufficient information to **ecology** or the **authority** to determine the effect of the increase upon ambient concentrations of sulfur dioxide. **Ecology** or the **authority** may issue **regulatory orders** requiring controls to reduce the effect of such increases. Cumulative changes in raw material or fuel of less than 0.5 percent increase in average annual sulfur content over the initial inventory shall not require such notice.

(7) No **person** shall make any false material statement, representation or certification in any form, notice or report required under chapter 70.94 or 70.120 RCW, or any ordinance, resolution, regulation, permit or **order** in force pursuant thereto.

(8) No **person** shall render inaccurate any monitoring device or method required under chapter 70.94 or 70.120 RCW, or any ordinance, resolution, regulation, permit, or **order** in force pursuant thereto.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-105, filed 8/15/01, effective 9/15/01. Statutory Authority: RCW 70.94.860, 70.94.510 and 70.94.331. 98-15-129 (Order 98-04), § 173-400-105, filed 7/21/98, effective 8/21/98. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-105, filed 9/13/96, effective 10/14/96; 93-18-007 (Order 93-03), § 173-400-105, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-105, filed 2/19/91, effective 3/22/91; 87-20-019 (Order 87-12), § 173-400-105, filed 9/30/87.]

WAC 173-400-110 New source review (NSR). (1) **Applicability.** This section, WAC 173-400-112 and 173-400-113 apply statewide except where an **authority** has adopted its own **new source** review rule.

(2) **Projects subject to NSR - notice of construction application.**

(a) A **notice of construction application** must be filed by the owner or operator and an **order of approval** issued by the **permitting agency** prior to the establishment of any **new source**, except for the following:

(i) Those sources exempt under subsection (4) or (5) of this section; and

(ii) A **source** regulated under WAC 173-400-035.

For purposes of this section "establishment" shall mean to begin actual construction, as that term is defined in WAC 173-400-030, and **"new source"** shall include any **modification** to an existing **stationary source**, as defined in WAC 173-400-030.

(b) Regardless of any other subsection of this section, a **notice of construction application** must be filed and an order of approval issued by the **permitting agency** prior to establishment of any of the following **new sources**:

(i) Any project that qualifies as construction, reconstruction or modification of an affected facility, within the meaning of 40 CFR Part 60 **(New Source Performance Standards)**, except Part AAA, Wood stoves (in effect on February 20, 2001);

(ii) Any project that qualifies as a new or modified source within the meaning of 40 CFR 61.02 **(National Emission Standards for Hazardous Air Pollutants)** (in effect on February 20, 2001), except for asbestos demolition and renovation projects subject to 40 CFR 61.145;

(iii) Any project that qualifies as a new source within the meaning of 40 CFR 63.2 **(National Emission Standards for Hazardous Air Pollutants for Source Categories)** (in effect on February 20, 2001);

(iv) Any project that qualifies as a new **major stationary source**, or a **major modification**;

(v) Any **modification** to a **source** that requires an increase either in a plant-wide cap or in a unit specific **emission limit**.

(c) An applicant filing a **notice of construction application** for a project described in WAC 173-400-117(2), Special protection requirements for **Class I areas**, must send a copy of the application to the responsible **federal land manager**.

(3) **Modifications. New source** review of a **modification** shall be limited to the **emission unit** or **units** proposed to be added to an existing **source** or modified and the **air contaminants** whose **emissions** would increase as a result of the **modification**; provided, however, that review of a **major modification** must comply with WAC 173-400-112 and/or 173-400-113, as applicable.

(4) **Emission unit and activity exemptions.**

Except as provided in subsection (2) of this section, establishment of a new **emission unit** that falls within one of the categories listed below is exempt from **new source** review. **Modification** of any **emission unit** listed below is exempt from **new source** review, provided that the modified unit continues to fall within one of the listed categories. The installation or **modification** of a unit exempt under this subsection does not require the filing of a **notice of construction application**.

(a) Maintenance/construction:

(i) Cleaning and sweeping of streets and paved surfaces;

(ii) Concrete application, and installation;

(iii) Dredging wet spoils handling and placement;

(iv) Paving application and maintenance, excluding asphalt plants;

(v) Plant maintenance and upkeep activities (grounds keeping, general repairs, routine house keeping, routine plant painting, welding, cutting, brazing, soldering, plumbing, retarring roofs, etc.);

(vi) Plumbing installation, plumbing protective coating application and maintenance activities;

(vii) Roofing application;

(viii) Insulation application and maintenance, excluding products for resale;

(ix) Janitorial services and consumer use of janitorial products.

(b) Storage tanks:

Note: It can be difficult to determine requirements for storage tanks. **Ecology** strongly recommends that an owner or operator contact the **permitting agency** to determine the exemption status of storage tanks prior to their installation.

(i) Lubricating oil storage tanks except those facilities that are wholesale or retail distributors of lubricating oils;

(ii) Polymer tanks and storage devices and associated pumping and handling equipment, used for solids dewatering and flocculation;

(iii) Storage tanks, reservoirs, pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions;

(iv) Process and white water storage tanks;

(v) Operation, loading and unloading of storage tanks and storage vessels, with lids or other appropriate closure and less than 260 gallon capacity (35 cft);

(vi) Operation, loading and unloading of storage tanks, ≤ 1100 gallon capacity, with lids or other appropriate closure, not for use with materials containing toxic air pollutants, as defined in chapter 173-460 WAC, max. VP 550 mm Hg @21°C;

(vii) Operation, loading and unloading storage of butane, propane, or liquefied petroleum gas with a vessel capacity less than 40,000 gallons;

(viii) Tanks, vessels and pumping equipment, with lids or other appropriate closure for storage or dispensing of aqueous solutions of inorganic salts, bases and acids.

(c) A project with combined aggregate heat inputs of combustion units, ≤ all of the following:

(i) ≤ 500,000 Btu/hr using coal with ≤ 0.5% sulfur or other fuels with ≤ 0.5% sulfur;

(ii) ≤ 500,000 Btu/hr used oil, per the requirements of RCW 70.94.610;

(iii) ≤ 400,000 Btu/hr wood waste or paper;

(iv) < 1,000,000 Btu/hr using kerosene, #1, or #2 fuel oil and with ≤0.05% sulfur;

(v) ≤ 4,000,000 Btu/hr using natural gas, propane, or LPG.

(d) Material handling:

(i) Continuous digester chip feeders;

(ii) Grain elevators not licensed as warehouses or dealers by either the Washington state department of agriculture or the U.S. Department of Agriculture;

(iii) Storage and handling of water based lubricants for metal working where organic content of the lubricant is ≤ 10%;

(iv) Equipment used exclusively to pump, load, unload, or store high boiling point organic material in tanks less than one million gallon, material with initial atmospheric boiling point not less than 150°C or vapor pressure not more than 5 mm Hg @21°C, with lids or other appropriate closure.

(e) Water treatment:

(i) Septic sewer systems, not including active wastewater treatment facilities;

(ii) NPDES permitted ponds and lagoons used solely for the purpose of settling suspended solids and skimming of oil and grease;

(iii) De-aeration (oxygen scavenging) of water where toxic air pollutants as defined in chapter 173-460 WAC are not emitted;

(iv) Process water filtration system and demineralizer vents;

(v) Sewer manholes, junction boxes, sumps and lift stations associated with wastewater treatment systems;

(vi) Demineralizer tanks;

(vii) Alum tanks;

(viii) Clean water condensate tanks.

(f) Environmental chambers and laboratory equipment:

(i) Environmental chambers and humidity chambers not using **toxic air pollutant** gases, as regulated under chapter 173-460 WAC;

(ii) Gas cabinets using only gases that are not toxic air pollutants regulated under chapter 173-460 WAC;

(iii) Installation or **modification** of a single laboratory fume hood;

(iv) Laboratory calibration and maintenance equipment.

(g) Monitoring/quality assurance/testing:

(i) Equipment and instrumentation used for quality control/assurance or inspection purpose;

(ii) Hydraulic and hydrostatic testing equipment;

(iii) Sample gathering, preparation and management;

(iv) Vents from continuous **emission** monitors and other analyzers.

(h) Miscellaneous:

(i) Single-family residences and duplexes;

(ii) Plastic pipe welding;

(iii) Primary agricultural production activities including soil preparation, planting, fertilizing, weed and pest control, and harvesting;

(iv) Comfort air conditioning;

(v) Flares used to indicate danger to the public;

(vi) Natural and forced air vents and **stacks** for bathroom/toilet activities;

(vii) Personal care activities;

(viii) Recreational fireplaces including the use of barbecues, campfires, and ceremonial fires;

(ix) Tobacco smoking rooms and areas;

(x) Noncommercial smokehouses;

(xi) Blacksmith forges for single forges;

(xii) Vehicle maintenance activities, not including vehicle surface coating;

(xiii) Vehicle or equipment washing (see (c) of this subsection for threshold for boilers);

(xiv) Wax application;

(xv) Oxygen, nitrogen, or rare gas extraction and liquefaction equipment not including internal and external combustion equipment;

(xvi) Ozone generators and ozonation equipment;

(xvii) Solar simulators;

(xviii) Ultraviolet curing processes, to the extent that **toxic air pollutant** gases as defined in chapter 173-460 WAC are not emitted;

(xix) Electrical circuit breakers, transformers, or switching equipment installation or operation;

(xx) Pulse capacitors;

(xxi) Pneumatically operated equipment, including tools and hand held applicator equipment for hot melt adhesives;

(xxii) Fire suppression equipment;

(xxiii) Recovery boiler blow-down tank;

(xxiv) Screw press vents;

(xxv) Drop hammers or hydraulic presses for forging or metal working;

(xxvi) Production of foundry sand molds, unheated and using binders less than 0.25% free phenol by sand weight;

(xxvii) Kraft lime mud storage tanks and process vessels;

(xxviii) Lime grits washers, filters and handling;

(xxix) Lime mud filtrate tanks;

(xxx) Lime mud water;

(xxxi) Stock cleaning and pressurized pulp washing down process of the brown stock washer;

(xxxii) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities and transportation marketing facilities;

(xxxiii) Nontoxic air pollutant, as defined in chapter 173-460 WAC, solvent cleaners less than 10 square feet air-vapor interface with solvent vapor pressure not more than 30 mm Hg @21°C;

(xxxiv) Surface coating, aqueous solution or suspension containing ≤ 1% (by weight) VOCs, and/or toxic air pollutants as defined in chapter 173-460 WAC;

(xxxv) Cleaning and stripping activities and equipment using solutions having ≤ 1% VOCs (by weight); on metallic substances, acid solutions are not exempt;

(xxxvi) Dip coating operations, using materials less than 1% VOCs (by weight) and/or toxic air pollutants as defined in chapter 173-460 WAC.

(5) **Exemptions based on emissions thresholds.**

(a) Except as provided in subsection (2) of this section and in this subsection:

(i) A new **emissions unit** that has a **potential to emit** below each of the threshold levels listed in the table contained in (d) of this subsection is exempt from **new source** review provided that the conditions of (b) of this subsection are met.

(ii) A **modification** to an existing **emissions unit** that increases the unit's **actual emissions** by less than each of the threshold levels listed in the table contained in (d) of this subsection is exempt from **new source** review provided that the conditions of (b) of this subsection are met.

(b) The owner or operator seeking to exempt a project from **new source** review under this section shall notify, and upon request, file a brief project summary with the **permitting agency** prior to **beginning actual construction** on the project. If the **permitting agency** determines that the project will have more than a de Minimus impact on air quality, the **permitting agency** may require the filing of a **notice of construction application**. The **permitting agency** may require the owner or operator to demonstrate that the **emissions** increase from the new **emissions unit** is smaller than all of the thresholds listed below.

(c) The owner/operator may **begin actual construction** on the project thirty-one days after the **permitting agency** receives the summary, unless the **permitting agency** notifies the owner/operator within thirty days that the proposed **new source** requires a **notice of construction application**.

(d) Exemption threshold table:

POLLUTANT	THRESHOLD LEVEL (TONS PER YEAR)
(a) **Total Suspended Particulates**	1.25
(b) **PM-10**	0.75
(c) Sulfur Oxides	2.0
(d) Nitrogen Oxides	2.0
(e) **Volatile Organic Compounds,** total	2.0
(f) Carbon Monoxide	5.0
(g) Lead	0.005
(h) **Ozone Depleting Substances** (in effect on July 1, 2000), total	1.0
(i) **Toxic Air Pollutants**	As specified in chapter 173-460 WAC.

(6) **Application processing - completeness determination.**

(a) Within thirty days after receiving a **notice of construction application** or **PSD** permit application, the **permitting agency** shall either notify the applicant in writing that the application is complete or notify the applicant in writing of all additional information necessary to complete the application.

(b) For a project subject to **PSD** review under WAC 173-400-141, a completeness determination includes a determination that the application provides all information required to conduct **PSD** review.

(c) For a project subject to the Special protection requirements for **federal Class I areas** in WAC 173-400-117(2), a completeness determination includes a determination that the application includes all information required for review of that project under WAC 173-400-117(3).

(7) **Final determination.**

(a) Within sixty days of receipt of a complete **notice of construction** or **PSD** permit **application, the permitting agency** shall either issue a final decision on the application or initiate public notice under WAC 173-400-171 on a proposed decision, followed as promptly as possible by a final decision.

(b) A **person** seeking approval to construct or **modify** a **source** that requires an operating permit may elect to integrate review of the operating permit application or amendment required under RCW 70.94.161 and the **notice of construction application** required by this section. A **notice of construction application** designated for integrated review shall be processed in accordance with operating permit pro-

gram procedures and deadlines in chapter 173-401 WAC. A **PSD** permit application under WAC 173-400-141, a **notice of nonattainment area construction application** for a **major modification** in a **nonattainment area**, or a **notice of construction application** for a **major stationary source** in a **nonattainment area** must also comply with WAC 173-400-171.

(c) Every final determination on a notice of construction application shall be reviewed and signed prior to issuance by a professional engineer or staff under the direct supervision of a professional engineer in the employ of the **permitting agency**.

(d) If the **new source** is a **major stationary source** or the change is a **major modification**, the **permitting agency** shall:

(i) Submit any control technology determination included in a final **order of approval** or **PSD** permit to the **RACT/BACT/LAER** clearinghouse maintained by **EPA**; and

(ii) Send a copy of the final **approval order** or **PSD** permit to EPA.

(8) **Appeals.** An **order of approval** or a **PSD** permit, any conditions contained in an **order of approval** or **PSD** permit, or the denial of a **notice of construction application** or **PSD** permit may be appealed to the pollution control hearings board as provided in chapter 43.21B RCW. The **permitting agency** shall promptly mail copies of each **order** approving or denying a **notice of construction application** or **PSD** permit to the applicant and to any other party who submitted timely comments on the application, along with a notice advising parties of their rights of appeal to the pollution control hearings board.

(9) **Construction time limitations.** Approval to construct or modify a **stationary source** becomes invalid if construction is not **commenced** within eighteen months after receipt of the approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The **permitting agency** may extend the eighteen-month period upon a satisfactory showing that an extension is justified. An extension for a project operating under a **PSD** permit must also comply with public notice requirements in WAC 173-400-171. This provision does not apply to the time period between construction of the approved phases of a phased construction project. Each phase must **commence** construction within eighteen months of the projected and approved commencement date.

(10) **Change of conditions.**

(a) The owner or operator may request, at any time, a change in conditions of an **approval order** or **PSD** permit and the **permitting agency** may approve the request provided the **permitting agency** finds that:

(i) The change in conditions will not cause the **source** to exceed an **emissions standard**;

(ii) No **ambient air quality standard** or **PSD** increment will be exceeded as a result of the change;

(iii) The change will not adversely impact the ability of **ecology** or the **authority** to determine compliance with an **emissions standard**;

(iv) The revised **order** will continue to require **BACT**, as defined at the time of the original approval, for each **new source** approved by the **order** except where the **Federal Clean Air Act** requires **LAER**; and

(v) The revised order meets the requirements of WAC 173-400-110, 173-400-112, 173-400-113 and 173-400-141, as applicable.

(b) Actions taken under this subsection are subject to the public involvement provisions of WAC 173-400-171.

(c) This rule does not prescribe the exact form such requests must take. However, if the request is filed as a **notice of construction application**, that application must be acted upon using the timelines found in subsections (6) and (7) of this section. The fee schedule found in WAC 173-400-116 shall also apply to requests filed as **notice of construction applications**.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-110, filed 8/15/01, effective 9/15/01. Statutory Authority: RCW 70.94.860, 70.94.510 and 70.94.331. 98-15-129 (Order 98-04), § 173-400-110, filed 7/21/98, effective 8/21/98. Statutory Authority: RCW 70.94.152. 98-01-183 (Order 96-01), § 173-400-110, filed 12/23/97, effective 1/23/98. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-110, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-110, filed 2/19/91, effective 3/22/91. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-110, filed 4/15/83. Statutory Authority: RCW 70.94.331, 70.94.510, and 70.94.785. 81-03-002 (Order DE 80-53), § 173-400-110, filed 1/8/81. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-110, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-110, filed 5/8/79; Order DE 76-38, § 173-400-110, filed 12/21/76. Formerly WAC 18-04-110.]

WAC 173-400-112 Requirements for new sources in nonattainment areas. (1) **Definitions.** The following definitions apply to this section:

(a) **"Major modification,"** for the purposes of WAC 173-400-112, means any physical change in or change in the method of operation of a **major stationary source** that would result in a **significant net emissions increase** of any pollutant subject to regulation under the **Federal Clean Air Act**.

(i) Any **net emissions increase** that is considered **significant** for **volatile organic compounds** or nitrogen oxides shall be considered **significant** for ozone.

(ii) A physical change or change in the method of operation shall not include:

(A) Routine maintenance, repair and replacement;

(B) Use of an alternative fuel or raw material by reason of an **order** under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(C) Use of an alternative fuel by reason of an **order** or rule under section 125 of the **Federal Clean Air Act**;

(D) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid

waste; (E) Use of an alternative fuel or raw material by a **source** which:

(I) The **source** was capable of accommodating before December 21, 1976, unless such change would be prohibited under any **federally enforceable** permit or **approval order** condition which was established after December 12, 1976, pursuant to 40 CFR 52.21 or a **SIP** approved **new source** review regulation; or

(II) The **source** is approved to use under any permit or **approval order** issued under WAC 173-400-112;

(iii) An increase in the hours of operation or in the production rate, unless such change is prohibited under any federally enforceable permit or **approval order** condition which was established after December 21, 1976, pursuant to 40 CFR 52.21 or a **SIP** approved **new source** review regulation.

(iv) Any change in ownership at a **source**.

(v) The addition, replacement, or use of a pollution control project (as defined in 40 CFR 51.165 (a)(1)(xxv), in effect on July 1, 2001) at an existing electric utility steam generating unit, unless the **permitting agency** determines that such addition, replacement, or use renders the unit less environmentally beneficial, or except:

(A) When the **permitting agency** has reason to believe that the pollution control project would result in a **significant net emissions** increase in representative actual annual **emissions** of any **criteria pollutant** over levels used for that **source** in the most recent air quality impact analysis in the area conducted for the purpose of title I of the **Federal Clean Air Act**, if any; and

(B) The **permitting agency** determines that the increase will cause or contribute to a violation of any **National Ambient Air Quality Standard** or **PSD** increment, or visibility limitation.

(vi) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

(A) The **SIP**; and

(B) Other requirements necessary to attain and maintain the **National Ambient Air Quality Standard** during the project and after it is terminated.

(b) **"Major stationary source,"** for the purposes of WAC 173-400-112, means:

(i) Any **stationary source** of air pollutants which emits, or has the **potential to emit**, 100 tons per year or more of any pollutant subject to regulation under the **Federal Clean Air Act**, except that lower **emissions** thresholds shall apply as follows:

(A) 70 tons per year of **PM-10** in any "serious" **nonattainment area** for PM-10.

(B) 50 tons per year of carbon monoxide in any "serious" **nonattainment area** for carbon monoxide where **stationary sources** contribute **significantly** to carbon monoxide levels in the area.

(ii) Any physical change that would occur at a **stationary source** not qualifying under (b)(i) of this subsection as a major stationary source, if the change would constitute a major stationary source by itself.

(iii) A major stationary source that is major for **volatile organic compounds** or NOx shall be considered major for ozone.

(iv) The **fugitive emissions** of a **stationary source** shall not be included in determining for any of the purposes of this paragraph whether it is a major stationary source, unless the **source** belongs to one of the following categories of **stationary sources** or the **source** is a major stationary source due to (b)(i)(A) or (b)(i)(B)of this subsection:

(A) Coal cleaning plants (with thermal dryers);

(B) Kraft pulp mills;

(C) Portland cement plants;

(D) Primary zinc smelters;

(E) Iron and steel mills;

(F) Primary aluminum ore reduction plants;

(G) Primary copper smelters;

(H) Municipal incinerators capable of charging more than 50 tons of refuse per day;

(I) Hydrofluoric, sulfuric, or nitric acid plants;

(J) Petroleum refineries;

(K) Lime plants;

(L) Phosphate rock processing plants;

(M) Coke oven batteries;

(N) Sulfur recovery plants;

(O) Carbon black plants (furnace process);

(P) Primary lead smelters;

(Q) Fuel conversion plants;

(R) Sintering plants;

(S) Secondary metal production plants;

(T) Chemical process plants;

(U) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(V) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(W) Taconite ore processing plants;

(X) Glass fiber processing plants;

(Y) Charcoal production plants;

(Z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; and

(AA) Any other **stationary source** category which, as of August 7, 1980, is being regulated under section 111 or 112 of the **Federal Clean Air Act**.

(v) For purposes of determining whether a **stationary source** is a major stationary source, the term **"building, structure, facility, or installation"** means all the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same major group (i.e., which have the same two digit code) as described in the *Standard Industrial Classification Manual,* as amended.

(c) **"Net emissions increase,"** for the purposes of WAC 173-400-112, means:

(i) The amount by which the sum of the following exceeds zero:

(A) Any increase in **actual emissions** from a particular physical change or change in method of operation at a **source**; and

(B) Any other increases and decreases in **actual emissions** at the **source** that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in **actual emissions** is contemporaneous with the increase from the particular change only if it occurs before the date that the increase from the particular change occurs.

(iii) An increase or decrease in **actual emissions** is creditable only if:

(A) It occurred no more than one year prior to the date of submittal of a complete **notice of construction application** for the particular change, or it has been documented by an **emission reduction credit (ERC)**. Any **emissions** increases occurring between the date of issuance of the **ERC** and the date when a particular change becomes operational shall be counted against the **ERC**.

(B) The **permitting agency** has not relied on it in issuing any permit or **order of approval** for the **source** under this section or a previous **SIP** approved **nonattainment area new source** review regulation, which **order** or permit is in effect when the increase in actual emissions from the particular change occurs.

(iv) An increase in **actual emissions** is creditable only to the extent that the new level of **actual emissions** exceeds the old level.

(v) A decrease in **actual emissions** is creditable only to the extent that:

(A) The old level of **actual emissions** or the old level of **allowable emissions**, whichever is lower, exceeds the new level of **actual emissions**;

(B) It is federally enforceable at and after the time that actual construction on the particular change begins;

(C) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change; and

(D) The **permitting agency** has not relied on it in issuing any permit or **order of approval** under this section or a **SIP** approved **nonattainment area new source** review regulation; or the **permitting agency** has not relied on it in demonstrating attainment or reasonable further progress.

(vi) An increase that results from a physical change at a **source** occurs when the **emission unit** on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed one hundred eighty days.

(d) **"Significant,"** for purposes of WAC 173-400-112, means, in reference to a **net emissions increase** or the **potential** of a **source to emit** any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate	
Carbon monoxide:	100 tons per year (tpy)
Nitrogen oxides:	40 tpy
Sulfur dioxide:	40 tpy
Volatile organic compounds:	40 tpy
Lead:	0.6 tpy
PM-10:	15 tpy

(2) The **permitting agency** that is reviewing an application to establish a **new source** in a **nonattainment area** shall issue the **order of approval** if it determines that the proposed project satisfies each of the following requirements:

(a) The proposed **new source** or **modification** will comply with all applicable **new source performance standards, national emission standards for hazardous air pollutants, national emission standards for hazardous air pollutants for source categories, emission standards** adopted under chapter 70.94 RCW and, for **sources** regulated by an **authority**, the applicable **emission standards** of that **authority**.

(b) The proposed **new source** will employ **BACT** for all **air contaminants**, except that if the **new source** is a **major stationary source** or the proposed **modification** is a **major modification** it will achieve **LAER** for the **air contaminants** for which the area has been designated **nonattainment** and for which the proposed **new source** or **modification** is **major**.

(c) The proposed **new source** will not cause any **ambient air quality standard** to be exceeded, will not violate the requirements for reasonable further progress established by the **SIP** and will comply with WAC 173-400-113 (2)(c) for all **air contaminants** for which the area has not been designated **nonattainment**.

(d) If the proposed **new source** is a **major stationary source** or the proposed **modification** is a **major modification**, the **permitting agency** has determined, based on review of an analysis performed by the **source** of alternative sites, sizes, production processes, and environmental control techniques, that the benefits of the project significantly outweigh the environmental and social costs imposed as a result of its location, construction, or **modification**.

(e) If the proposed **new source** or the proposed **modification** is **major** for the **air contaminant** for which the area is designated **nonattainment, allowable emissions** from the proposed **new source** or **modification** of that **air contaminant** are offset by reductions in **actual emissions** from existing **sources** in the **nonattainment** area. **Emission** offsets must be sufficient to ensure that total **allowable emissions** from existing **major stationary sources** in the **nonattainment area, new** or **modified sources** which are not **major stationary sources**, and the proposed **new** or **modified source** will be less than total **actual emissions** from existing **sources** (before submitting the application) so as to represent (when considered together with the nonattainment provisions of section 172 of the **Federal Clean Air Act**) reasonable further progress. All offsetting **emission** reductions must satisfy the following requirements:

(i) The proposed new level of **allowable emissions** of the source or **emissions unit(s)** providing the reduction must be less than the current level of **actual emissions** of that

source or **emissions unit(s)**. No emission reduction can be credited for **actual emissions** which exceed the current **allowable emissions** of the **source** or **emissions unit(s)** providing the reduction. **Emission** reductions imposed by local, state, or federal regulations, regulatory orders, or permits required by the **Federal Clean Air Act**, including the **SIP**, cannot be credited.

(ii) The **emission** reductions must provide for a net air quality benefit. For marginal ozone **nonattainment areas**, the total **emissions** of **volatile organic compounds** or total **emissions** of nitrogen oxides are reduced by a ratio of 1.1 to 1 for the area in which the **new source** is located. For any other **nonattainment area**, the **emissions** offsets must provide a positive net air quality benefit in the **nonattainment area**. Determinations on whether **emissions** offsets provide a positive net air quality benefit will be made in accordance with the guidelines contained in 40 CFR 51 Appendix S (in effect on July 1, 2000).

(iii) If the offsets are provided by another **source**, the reductions in **emissions** from that **source** must be federally enforceable by the time the **order of approval** for the **new** or **modified source** is effective. An **emission reduction credit** issued under WAC 173-400-131 may be used to satisfy some or all of the offset requirements of this subsection.

(f) If the proposed **new source** is a **major stationary source** or the proposed **modification** is a **major modification**, the owner or operator has demonstrated that all **major stationary sources** owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in Washington are subject to **emission limitations** and are in compliance, or on a schedule for compliance, with all applicable **emission limitations** and **standards** under the **Federal Clean Air Act**, including all rules in the **SIP**.

(g) If the proposed **new source** is a **major stationary source** within the meaning of WAC 173-400-113(1), or the proposed **modification** is a **major modification** within the meaning of WAC 173-400-113(1), it meets the requirements of the **PSD** program in WAC 173-400-141 for all **air contaminants** for which the area has not been designated **nonattainment**.

(h) If the proposed **new source** or **modification** will emit any **toxic air pollutants** regulated under chapter 173-460 WAC, the **source** meets all applicable requirements of that chapter.

(i) If the proposed **new source** is a **major stationary source** within the meaning of WAC 173-400-113(1), or the proposed **modification** is a **major modification** within the meaning of WAC 173-400-113(1), the project meets the Special protection requirements for **federal Class I areas** in WAC 173-400-117.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-112, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-112, filed 8/20/93, effective 9/20/93.]

WAC 173-400-113 Requirements for new sources in attainment or unclassifiable areas. (1) **Definitions.** The following definitions apply to this section:

(a) **"Major modification"** for purposes of WAC 173-400-113, means any physical change in or change in the method of operation of a **major stationary source** that would result in a **significant net emissions increase** of any pollutant subject to regulation under the **Federal Clean Air Act**.

(i) Any **net emissions increase** that is considered **significant** for **volatile organic compounds** or nitrogen oxides shall be considered **significant** for ozone.

(ii) A physical change or change in the method of operation shall not include:

(A) Routine maintenance, repair and replacement;

(B) Use of an alternative fuel or raw material by reason of an **order** under section 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(C) Use of an alternative fuel by reason of an order or rule section 125 of the **Federal Clean Air Act**;

(D) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(E) Use of an alternative fuel or raw material by a **source** which:

(I) The **source** was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition or **approval order** which was established after January 6, 1975, pursuant to 40 CFR 52.21 or a **SIP** approved **new source** review regulation; or

(II) The **source** is approved to use under any **PSD** permit;

(F) An increase in the hours of operation or in the production rate, unless such change is prohibited under any **federally enforceable** permit condition or an **approval order** which was established after January 6, 1975, pursuant to 40 CFR 52.21 or a **SIP** approved **new source** review regulation.

(G) Any change in ownership at a **source**.

(H) The addition, replacement, or use of a pollution control project at an existing electric utility steam generating unit, unless the **permitting agency** determines that such addition, replacement, or use renders the unit less environmentally beneficial, or except:

(I) When the **permitting agency** has reason to believe that the pollution control project (as defined in 40 CFR 51.166, in effect on July 1, 2001) would result in a **significant net emissions increase** in representative **actual** annual **emissions** of any **criteria pollutant** over levels used for that **source** in the most recent air quality impact analysis in the area conducted for the purpose of title I of the **Federal Clean Air Act**, if any; and

(II) The **permitting agency** determines that the increase will cause or contribute to a violation of any **National Ambi-**

ent Air Quality Standard or **PSD** increment, or visibility limitation.

(I) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with the **SIP**, and other requirements necessary to attain and maintain the **National Ambient Air Quality Standard** during the project and after it is terminated.

(b) **"Major stationary source,"** for purposes of WAC 173-400-113, means:

(i) Any of the following **stationary sources** of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the **Federal Clean Air Act**:

(A) Fossil fuel-fired steam electric plants of more than 50 million British thermal units per hour heat input;

(B) Coal cleaning plants (with thermal dryers);

(C) Kraft pulp mills;

(D) Portland cement plants;

(E) Primary zinc smelters;

(F) Iron and steel mill plants;

(G) Primary aluminum ore reduction plants;

(H) Primary copper smelters;

(I) Municipal **incinerators** capable of charging more than 50 tons of refuse per day;

(J) Hydrofluoric, sulfuric, and nitric acid plants;

(K) Petroleum refineries;

(L) Lime plants;

(M) Phosphate rock processing plants;

(N) Coke oven batteries;

(O) Sulfur recovery plants;

(P) Carbon black plants (furnace process);

(Q) Primary lead smelters;

(R) Fuel conversion plants;

(S) Sintering plants;

(T) Secondary metal production plants;

(U) Chemical process plants;

(V) Fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input;

(W) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(X) Taconite ore processing plants;

(Y) Glass fiber processing plants; and

(Z) Charcoal production plants.

(ii) Regardless of the **stationary source** size specified in (b)(i) of this subsection, any **stationary source** which emits, or has the **potential to emit**, 250 tons per year or more of any air pollutant subject to regulation under the **Federal Clean Air Act**; or

(iii) Any physical change that would occur at a **stationary source** not otherwise qualifying under (b)(i) or (ii) of this subsection, as a major stationary source if the change would constitute a major stationary source by itself.

(iv) A major stationary source that is major for **volatile organic compounds** or NOx shall be considered major for ozone.

(v) The **fugitive emissions** of a **stationary source** shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories of **stationary sources**:

(A) Coal cleaning plants (with thermal dryers);

(B) Kraft pulp mills;

(C) Portland cement plants;

(D) Primary zinc smelters;

(E) Iron and steel mills;

(F) Primary aluminum ore reduction plants;

(G) Primary copper smelters;

(H) Municipal incinerators capable of charging more than 50 tons of refuse per day;

(I) Hydrofluoric, sulfuric, or nitric acid plants;

(J) Petroleum refineries;

(K) Lime plants;

(L) Phosphate rock processing plants;

(M) Coke oven batteries;

(N) Sulfur recovery plants;

(O) Carbon black plants (furnace process);

(P) Primary lead smelters;

(Q) Fuel conversion plants;

(R) Sintering plants;

(S) Secondary metal production plants;

(T) Chemical process plants;

(U) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(V) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(W) Taconite ore processing plants;

(X) Glass fiber processing plants;

(Y) Charcoal production plants;

(Z) Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

(AA) Any other **stationary source** category which, as of August 7, 1980, is being regulated under section 111 or 112 of the **Federal Clean Air Act**.

(vi) For purposes of determining whether a **stationary source** is a major stationary source, the term **"building, structure, facility, or installation"** means all the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same major group (i.e., which have the same two digit code) as described in the *Standard Industrial Classification Manual, 1972,* as amended.

(c) **"Net emissions increase"** for purposes of WAC 173-400-113, means:

(i) The amount by which the sum of the following exceeds zero:

(A) Any increase in **actual emissions** from a particular physical change or change in the method of operation at a **source**; and

(B) Any other increases and decreases in **actual emissions** at the **source** that are contemporaneous with the particular change and are otherwise creditable.

(ii) An increase or decrease in **actual emissions** is contemporaneous with the increase from the particular change only if it occurs within five years before the date that the increase from the particular change occurs.

(iii) An increase or decrease in actual emissions is creditable only if **ecology** or **EPA** has not relied on it in issuing a **PSD** permit for the **source**, which permit is in effect when the increase in **actual emissions** from the particular change occurs.

(iv) An increase or decrease in **actual emissions** of sulfur dioxide, particulate matter, or nitrogen oxides, which occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available. With respect to **particulate matter**, only **PM-10 emissions** can be used to evaluate the net emissions increase for **PM-10**.

(v) An increase in **actual emissions** is creditable only to the extent that the new level of **actual emissions** exceeds the old level.

(vi) A decrease in **actual emissions** is creditable only to the extent that:

(A) The old level of **actual emissions** or the old level of **allowable emissions**, whichever is lower, exceeds the new level of **actual emissions**;

(B) It is **federally enforceable** at and after the time that actual construction on the particular change begins; and

(C) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(vii) An increase that results from a physical change at a source occurs when the **emissions unit** on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed one hundred eighty days.

(d) **"Significant,"** for purposes of WAC 173-400-113, means:

(i) In reference to a **net emissions increase** or the **potential** of a **source to emit** any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate	
Carbon monoxide:	100 tons per year (tpy)
Nitrogen oxides:	40 tpy
Sulfur dioxide:	40 tpy
Particulate matter (PM):	25 tpy of **PM emissions** 15 tpy of **PM-10 emissions**
Volatile organic compounds:	40 tpy
Fluorides:	3 tpy
Lead:	0.6 tpy
Sulfuric acid mist:	7 tpy
Hydrogen sulfide (H_2S):	10 tpy
Total reduced sulfur (including H_2S):	10 tpy
Reduced sulfur compounds (including H_2S):	10 tpy
Municipal waste combustor organics: (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)	3.2 grams per year (0.112 oz. per year or 49 grains per year)
Municipal waste combustor metals: (measured as particulate matter)	14 megagrams per year (15 tpy)
Municipal waste combustor acid gases: (measured as sulfur dioxide and hydrogen chloride)	36 megagrams per year (40 tpy)
Municipal solid waste landfill emissions: (measured as nonmethane organic compounds)	45 megagrams per year (50 tpy)
Ozone-depleting substances (in effect on July 1, 2000):	100 tpy

(ii) In reference to a **net emissions increase** or the potential of a **source** to emit a pollutant subject to regulation under the **Federal Clean Air Act** that the definition in (d)(i) of this subsection does not list, any emissions rate. However, for purposes of the applicability of this section, the hazardous air pollutants listed under section 112(b) of the **Federal Clean Air Act**, including the hazardous air pollutants that may have been added to the list, are not considered subject to regulation.

(iii) Regardless of the definition in (d)(i) of this subsection, significant means any emissions rate or any **net emissions increase** associated with a **major stationary source** or **major modification** which would construct within 10 kilometers of a **Class I area**, and have an impact on such area equal to or greater than 1 microgram per cubic meter (twenty-four-hour average).

(2) The **permitting agency** that is reviewing an application to establish a **new source** or **modification** in an **attainment** or **unclassifiable area** shall issue an **order of approval** if it determines that the proposed project satisfies each of the following requirements:

(a) The proposed **new source** or **modification** will comply with all applicable **new source performance standards**, **national emission standards for hazardous air pollutants**, **national emission standards for hazardous air pollutants for source categories, emission standards** adopted under chapter 70.94 RCW and, for **sources** regulated by an **authority**, the applicable **emission standards** of that **authority**.

(b) The proposed **new source** or **modification** will employ **BACT** for all pollutants not previously emitted or whose **emissions** would increase as a result of the **new source** or **modification**.

(c) **Allowable emissions** from the proposed **new source** or **modification** will not delay the **attainment** date for an area not in **attainment** nor cause or contribute to a violation of any **ambient air quality standard**. This requirement will

be considered to be met if the projected impact of the **allowable emissions** from the proposed **new source** or the projected impact of the increase in **allowable emissions** from the proposed **modification** at any location within a **nonattainment area** does not exceed the following levels for the pollutants for which the area has been designated **nonattainment**:

Pollutant	Annual Average	24-Hour Average	8-Hour Average	3-Hour Average	1-Hour Average
CO-	-		0.5 mg/m^3	-	2 mg/m^3
SO_2	1.0 μg/m^3	5 μg/m^3	-	25 μg/m^3	30 μg/m^3
PM_{10}	1.0 μg/m^3	5 μg/m^3	-	-	-
NO_2	1.0 μg/m^3	-	-	-	-

An offsetting emission reduction may be used to satisfy some or all of the requirements of this subsection.

(d) If the proposed **new source** is a **major stationary source** or the proposed **modification** is a **major modification**, it meets all applicable requirements of WAC 173-400-141.

(e) If the proposed **new source** or the proposed **modification** will emit any **toxic air pollutants** regulated under chapter 173-460 WAC, the source meets all applicable requirements of that program.

(f) If the proposed **new source** is a **major stationary source** or the proposed **modification** is a **major modification**, the project meets the Special protection requirements for **federal Class I areas** of WAC 173-400-117.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-113, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-113, filed 8/20/93, effective 9/20/93.]

WAC 173-400-114 Requirements for replacement or substantial alteration of emission control technology at an existing stationary source. (1) Any **person** proposing to replace or substantially alter the **emission** control technology installed on an existing **stationary source** or **emission unit** shall file a **notice of construction application** with the appropriate **authority**, or with **ecology** in areas or for **sources** over which **ecology** has jurisdiction. Replacement or substantial alteration of control technology does not include routine maintenance, repair or similar parts replacement.

(2) For projects not otherwise reviewable under WAC 173-400-110, **ecology** or the **authority** may:

(a) Require that the owner or operator employ **RACT** for the affected **emission unit**;

(b) Prescribe reasonable operation and maintenance conditions for the control equipment; and

(c) Prescribe other requirements as authorized by chapter 70.94 RCW.

(3) Within thirty days of receipt of a **notice of construction application** under this section **ecology** or the **authority** shall either notify the applicant in writing that the application is complete or notify the applicant in writing of all additional information necessary to complete the application. Within thirty days of receipt of a complete **notice of construction application** under this section **ecology** or the **authority** shall either issue an **order of approval** or a proposed **RACT** determination for the proposed project.

(4) Construction shall not **"commence,"** as defined in WAC 173-400-030, on a project subject to review under this section until **ecology** or the **authority** issues a final **order of approval**. However, any **notice of construction application** filed under this section shall be deemed to be approved without conditions if **ecology** or the **authority** takes no action within thirty days of receipt of a complete **notice of construction application**.

(5) Approval to replace or substantially alter **emission** control technology shall become invalid if construction is not **commenced** within eighteen months after receipt of such approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. **Ecology** or the **authority** may extend the eighteen-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within eighteen months of the projected and approved commencement date.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-114, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-114, filed 8/20/93, effective 9/20/93.]

WAC 173-400-115 Standards of performance for new sources. NSPS. Standards of performance for new sources are called **New Source Performance Standards**, or **NSPS**.

(1) **Adoption by reference.**

(a) 40 CFR Part 60 and Appendices in effect on February 20, 2001, is adopted by reference. Exceptions are listed in subsection (1)(d) of this section.

(b) 40 CFR Part 60, subpart AAAA (new small municipal waste combustion units) in effect on June 6, 2001, is adopted by reference.

(c) 40 CFR Part 60, subpart CCCC (commercial and industrial solid waste incineration units) in effect on June 1, 2001, is adopted by reference.

The following list is provided for informational purposes:

Subpart A	General Provisions, except 40 CFR 60.5 and 60.6
Subpart D	Fossil fuel fired steam generators for which construction commenced after August 17, 1971, and prior to September 19, 1978, which have a heat input greater than 73 megawatts but not greater than 350 megawatts
Subpart Da	Electric utility steam generating units for which construction commenced after September 18, 1978, which have a heat input greater than 73 megawatts but not greater than 350 megawatts

Subpart Db	Industrial-commercial-institutional steam generating units for which construction commenced after June 19, 1984, and prior to June 19, 1986, which have a heat input greater than 29 megawatts but less than 73 megawatts
Subpart Dc	Small industrial-commercial-institutional steam generating units
Subpart E	Incinerators
Subpart Ea	Municipal waste combustors
Subpart Eb	Large municipal waste combustors constructed after September 20, 1964, or modified or reconstructed after June 19, 1964
Subpart Ec	Hospital/Medical/Infectious Waste Incinerators Constructed after June 20, 1996
Subpart F	Portland cement plants
Subpart G	Nitric acid plants
Subpart H	Sulfuric acid plants
Subpart I	Asphalt concrete plants
Subpart J	Petroleum refineries which produce less than 25,000 barrels per day of refined products
Subpart K	Storage vessels for petroleum liquid constructed after June 11, 1973, and prior to May 19, 1978, which have a capacity greater than 40,000 gallons
Subpart Ka	Storage vessels for petroleum liquids constructed after May 18, 1978, which have a capacity greater than 40,000 gallons
Subpart Kb	Volatile organic liquid storage vessels (including petroleum liquid storage vessels) constructed, reconstructed, or modified after July 23, 1984
Subpart L	Secondary lead smelters
Subpart M	Brass and bronze ingot production plants
Subpart N	Iron and steel plants
Subpart Na	Secondary emissions from basic oxygen process steel making facilities
Subpart O	Sewage treatment plants
Subpart P	Primary copper smelters
Subpart Q	Primary zinc smelters
Subpart R	Primary lead smelters
Subpart S	Primary aluminum reduction plants
Subpart T	Phosphate fertilizer industry: Wet process phosphoric acid plants
Subpart U	Phosphate fertilizer industry: Superphosphoric acid plants
Subpart V	Phosphate fertilizer industry: Diammonium phosphate plants
Subpart W	Phosphate fertilizer industry: Triple superphosphate plants
Subpart X	Phosphate fertilizer industry: Granular triple superphosphate storage facilities
Subpart Y	Coal preparation plants
Subpart Z	Ferroalloy production facilities
Subpart AA	Steel plants: Electric arc furnaces
Subpart AAa	Steel plants: Electric arc furnaces and argon-oxygen decarburization vessels
Subpart BB	Kraft pulp mills
Subpart CC	Glass manufacturing plants
Subpart DD	Grain elevators
Subpart EE	Industrial surface coating: Metal furniture
Subpart GG	Stationary gas turbines
Subpart HH	Lime manufacturing plants
Subpart KK	Lead-acid battery plants
Subpart LL	Metallic mineral processing plants
Subpart MM	Automobile and light duty truck surface coating operations
Subpart NN	Phosphate rock plants
Subpart PP	Ammonium sulfate manufacture
Subpart QQ	Publication rotogravure printing
Subpart RR	Pressure sensitive tape and label surface coating operations
Subpart SS	Industrial surface coating: Large appliances
Subpart TT	Industrial surface coating: Metal coils
Subpart UU	Asphalt processing and asphalt roofing manufacture
Subpart VV	SOCMI equipment leaks (VOC)
Subpart WW	Beverage can surface coating operations
Subpart XX	Bulk gasoline terminals
Subpart AAA	New residential wood heaters
Subpart BBB	Rubber tire manufacturing industry
Subpart DDD	VOC emissions from the polymer manufacturing industry
Subpart FFF	Flexible vinyl and urethane coating and printing
Subpart GGG	Petroleum refineries - compressors and fugitive emission sources
Subpart HHH	Synthetic fiber production facilities
Subpart III	VOC emissions from SOCMI air oxidation unit processes
Subpart JJJ	Petroleum dry cleaners
Subpart KKK	Equipment leaks of VOC from onshore natural gas processing plants
Subpart LLL	Onshore natural gas processing; SO_2 emissions
Subpart NNN	VOC emissions from SOCMI distillation operations
Subpart OOO	Nonmetallic mineral processing plants
Subpart PPP	Wool fiberglass insulation manufacturing plants
Subpart QQQ	VOC emissions from petroleum refinery wastewater emissions
Subpart RRR	VOC emissions from synthetic organic chemical manufacturing industry
Subpart SSS	Magnetic tape coating facilities
Subpart TTT	Industrial surface coating: Surface coating of plastic parts for business machines
Subpart UUU	Calciners and dryers in mineral industries
Subpart VVV	Polymeric coating of supporting substrates facilities
Subpart WWW	Municipal Solid Waste Landfills constructed, reconstructed or modified on or after May 30, 1991 (See WAC 173-400-070(9) for rules regulating MSW landfills constructed or modified before May 30, 1991.)

Subpart AAAA	Small municipal waste combustion units constructed after August 30, 1999, or modified or reconstructed after June 6, 2001 (See WAC 173-400-050(5) for rules regulating small municipal waste combustion units constructed on or before August 30, 1999.)
Subpart CCCC	Commercial and industrial solid waste incinerators constructed after November 30, 1999; or modified or reconstructed on or after June 1, 2001 (See WAC 173-400-050(4) for rules regulating commercial and industrial solid waste incinerators constructed on or before November 30, 1999.)
Appendix A	Test Methods
Appendix B	Performance Specifications
Appendix C	Determination of Emission Rate Change
Appendix D	Required Emission Inventory Information
Appendix F	Quality Assurance Procedures
Appendix I	Removable Label and Owner's Manual

(d) Exceptions to adopting 40 CFR Part 60 by reference.

(i) The term "administrator" in 40 CFR Part 60 includes the **permitting agency**.

(ii) The following sections and subparts of 40 CFR Part 60 are not adopted by reference:

(A) 40 CFR 60.5 (determination of construction or modification);

(B) 40 CFR 60.6 (review of plans); and

(C) 40 CFR Part 60, subparts C, Cb, Cc, Cd, and Ce (emission guidelines).

(iii) Effective June 6, 2001, 40 CFR 60.17 (subpart A) is amended by revising paragraphs (h)(1), (h)(2), and (h)(3) to read as follows:

(h)(1) ASME QRO-1-1994, Standard for the Qualification and Certification of Resource Recovery Facility Operators approved for Section 60.56a, 60.54b(a), 60.54b(b), 60.1185(a), 60.1185 (c)(2), 60.1675(a), and 60.1675 (c)(2).

(h)(2) ASME PTC 4.1-1964 (Reaffirmed 1991), Power Test Codes: Test Code for Steam Generating Units (with 1968 and 1969 Addenda), IBR approved for Section 60.46b, 60.58a (h)(6)(ii), 60.58b (i)(6)(ii), 60.1320 (a)(3) and 60.1810 (a)(3).

(h)(3) ASME interim Supplement 19.5 on Instruments and Apparatus: Application, Part II of Fluid Meters, 6th Edition (1971), IBR approved for Section 60.58a (h)(6)(ii), 60.58b (i)(6)(ii), 60.1320 (a)(4) and 60.1810 (a)(4).

(2) Note that under RCW 80.50.020(14), larger energy facilities subject to subparts D, Da, GG, J, K, Kb, Y, KKK, LLL, and QQQ are regulated by the energy facility site evaluation council (EFSEC) under WAC 463-39-115.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-115, filed 8/15/01, effective 9/15/01. Statutory Authority: [RCW 70.94.331, 70.94.510 and chapter 70.94 RCW.] 00-23-130 (Order 98-27), § 173-400-115, filed 11/22/00, effective 12/23/00. Statutory Authority: RCW 70.94.785. 98-22-019 (Order 98-02), § 173-400-115, filed 10/23/98, effective 11/23/98. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-115, filed 9/13/96, effective 10/14/96; 93-05-044 (Order 92-34), § 173-400-115, filed 2/17/93, effective 3/20/93; 91-05-064 (Order 90-06), § 173-400-115, filed 2/19/91, effective 3/22/91. Statutory Authority: RCW 70.94.331, 70.94.395 and 70.94.510. 85-06-046 (Order 84-48), § 173-400-115, filed 3/6/85. Statutory Authority: Chapters 43.21A and 70.94 RCW. 83-09-036 (Order DE 83-13), § 173-400-115, filed 4/15/83; 82-16-019 (Order DE 82-20), § 173-400-115, filed 7/27/82. Statutory Authority: RCW 70.94.331. 80-11-059 (Order DE 80-14), § 173-400-115, filed 8/20/80. Statutory Authority: RCW 43.21A.080 and 70.94.331. 79-06-012 (Order DE 78-21), § 173-400-115, filed 5/8/79; Order DE 76-38, § 173-400-115, filed 12/21/76. Formerly WAC 18-04-115.]

WAC 173-400-116 New source review fees. (1) **Applicability.** Every **person** required to submit a **notice of construction application** to the department of **ecology** as authorized in RCW 70.94.152 for establishment of any proposed **new source** or **emissions unit(s)** shall pay fees as set forth in subsections (2) and (3) of this section. **Persons** required to submit a **notice of construction application** to a local air **authority** may be required to pay a fee to **ecology** to cover the costs of review pursuant to WAC 173-400-141, second tier analysis pursuant to WAC 173-460-090, and risk management decisions pursuant to WAC 173-460-100 as set forth in subsection (3) of this section. Fees assessed under this section shall apply without regard to whether an **order of approval** is issued or denied.

(2) **Basic review fees.** All owners or operators of proposed new sources are required to pay a basic review fee. The basic review fee covers the costs associated with preapplication assistance, completeness determination, **BACT** determination, technical review, public involvement and **approval/denial orders**. Complexity determination shall be based on the project described in the **notice of construction application**. Basic review fees are shown below:

(a) Low complexity **new source** or **emission unit** (**emissions** of individual **criteria pollutants** are all less than one-half of the levels established in the definition of **"significant"** in WAC 173-400-112 and/or 173-400-113, as applicable, or **emissions** of individual **toxic air pollutants** are all less than 2.0 tons/year) - one thousand dollars;

(b) Moderate complexity **new source** or **emission unit** (**emissions** of one or more individual **criteria pollutants** are greater than one-half of the levels established in the definition of **"significant"** in WAC 173-400-112 and/or 173-400-113, as applicable, or **emissions** of one or more **toxic air pollutants** are greater than 2.0 tons/year and less than ten tons/year) - five thousand dollars; or

(c) High complexity **new source** or **emissions unit** (**emissions** of one or more **criteria pollutants** are greater than the levels established in the definition of **"significant"** in WAC 173-400-112 and/or 173-400-113, as applicable, or **emissions** of one or more **toxic air pollutants** are greater than ten tons/year) - fifteen thousand dollars.

(d) Exceptions. The following fees for **new source** review shall be charged instead of the applicable fees listed in (a) through (c) of this subsection and in subsection (3) of this section:

(i)	Dry cleaners	$200
(ii)	Gasoline stations	$200
(iii)	Storage tanks	
(A)	< 20,000 gallons	$200
(B)	20,000 - 100,000 gallons	$500

(C)	> 100,000	$700
(iv)	Chromic acid plating and anodizing identified in WAC 173-460-060	$200
(v)	Solvent metal cleaners identified in WAC 173-460-060	$200
(vi)	Abrasive blasting identified in WAC 173-460-060	$200
(vii)	New **emission units** or activities that qualify as insignificant emission units under WAC 173-401-530 whether located at a chapter 401 source or nonchapter 401 source	$200

(e) Additional units. An owner or operator proposing to build more than one identical **emission unit** shall be charged a fee for the additional units equal to one-third the basic review fee of the first unit.

(3) **Additional charges.** In addition to those fees required under subsection (2)(a) through (c) of this section, the following fees will be required as applicable:

(a) **Prevention of significant deterioration** review (includes **ecology** review of local air **authority sources**) - ten thousand dollars;

(b) Establishing **LAER** and offset requirements for a **major stationary source** or **major modification** proposing to locate in a **nonattainment area** - ten thousand dollars;

(c) Tier II toxics review as required under WAC 173-460-090 - seven thousand five hundred dollars;

(d) Tier III review as required under WAC 173-460-100 - five thousand dollars;

(e) State Environmental Policy Act review (where ecology is the lead agency):

(i) Determination of nonsignificance (DNS) and environmental checklist review - two hundred dollars; or

(ii) Environmental impact statement (EIS) review - two thousand dollars;

(iii) Where more than one **ecology** program is charging a fee for reviewing or preparing SEPA documents, **ecology** will not charge a SEPA review fee as part of the **new source** review fees;

(f) Case-by-case MACT determinations required for a **new source** or **modification** under Section 112(g) or Section 112(j) of the **FCAA** - five thousand dollars.

(4) **Small business fee reduction.** The **new source** review fee identified in subsections (2) and (3) of this section may be reduced for a small business.

(a) To qualify for the small business **new source** review fee reduction, a business must meet the requirements of "small business" as defined in RCW 19.85.020. In RCW 19.85.020, "small business" means any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, that has the purpose of making a profit, and that has fifty or fewer employees.

(b) To receive a fee reduction, the owner or operator of a small business must include information in the application demonstrating that the conditions of (a) of this subsection have been met. The application must be signed:

(i) By an authorized corporate officer in the case of a corporation;

(ii) By an authorized partner in the case of a limited or general partnership; or

(iii) By the proprietor in the case of a sole proprietorship.

(c) **Ecology** may verify the application information and if the owner or operator has made false statements, deny the fee reduction request and revoke previously granted fee reductions.

(d) For small businesses determined to be eligible under (a) of this subsection, the new source review fee shall be reduced to the greater of:

(i) Fifty percent of the **new source** review fee; or

(ii) Two hundred fifty dollars.

(e) If due to special economic circumstances, the fee reduction determined under (d) of this subsection imposes an extreme hardship on a small business, the small business may request an extreme hardship fee reduction. The owner or operator must provide sufficient evidence to support a claim of an extreme hardship. The factors which **ecology** may consider in determining whether an owner or operator has special economic circumstances and in setting the extreme hardship fee include: Annual sales; labor force size; market conditions which affect the owner's or operator's ability to pass the cost of the **new source** review fees through to customers; and average annual profits. In no case will a new source review fee be reduced below one hundred dollars.

(5) Fee reductions for pollution prevention initiatives. **Ecology** may reduce the fees defined in subsections (2) and (3) of this section where the owner or operator of the proposed **source** demonstrates that approved pollution prevention measures will be used.

(6) Fee payments. Fees specified in subsections (2) through (5) of this section shall be paid at the time a **notice of construction application** is submitted to the department. A **notice of construction application** is considered incomplete until **ecology** has received the appropriate **new source** review payment. Additional charges assessed pursuant to subsection (3) of this section shall be due thirty days after receipt of an **ecology** billing statement. All fees collected under this regulation shall be made payable to the Washington department of **ecology**.

(7) Dedicated account. All **new source** review fees collected by the department from permit program **sources** shall be deposited in the air operating permit account created under RCW 70.94.015. All **new source** review fees collected by the department from nonpermit program **sources** shall be deposited in the air pollution control account.

(8) Tracking revenues, time, and expenditures. **Ecology** shall track revenues collected under this subsection on a source-specific basis. Ecology shall track time and expenditures on the basis of complexity categories.

(9) Periodic review. **Ecology** shall review and, as appropriate, update this section at least once every two years.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-116, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-116, filed 9/13/96, effec-

tive 10/14/96. Statutory Authority: RCW 70.94.153 and 70.94.154. 94-17-070, § 173-400-116, filed 8/15/94, effective 9/15/94.]

WAC 173-400-117 Special protection requirements for federal Class I areas. (1) **Definitions.** The following definition applies to this section:

"Adverse impact on visibility" means **visibility impairment** that interferes with the management, protection, preservation, or enjoyment of the visitor's visual experience of the **federal Class I area**. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency, and time of visibility impairment, and how these factors correlate with:

(a) Times of visitor use of the **federal Class I area**; and

(b) The frequency and timing of natural conditions that reduce visibility.

(2) **Applicability.** The requirements of this section apply to all of the following **sources**:

(a) A **source** that is submitting a **PSD** permit application for a new **major stationary source** or a **major modification**; or

(b) A **source** in a **nonattainment area** that is submitting a **notice of construction application** for a **major stationary source** or a **major modification**, as either of those terms are defined in WAC 173-400-113, Requirements for **new sources** in **attainment** or **unclassifiable areas**.

(3) **Contents and distribution of application.**

(a) The application shall include an analysis of the anticipated impacts of the project on visibility in any **federal Class I area**.

(b) The applicant must mail a copy of the application for the project and all amendments to the application to the **permitting agency, EPA** and to the responsible **federal land manager**. **Ecology** will provide a list of the names and addresses of the **federal land manager**.

(4) **Notice to federal land manager.**

(a) The **permitting agency** shall send a copy of the completeness determination to the responsible **federal land manager**.

(b) If, prior to receiving a **notice of construction application** or a **PSD** permit application, the **permitting agency** receives notice of a project described in subsection (2) of this section that may affect visibility in a **federal Class I area**, the **permitting agency** shall notify the responsible **federal land manager** within thirty days of the notification.

(5) **Analysis by federal land manager.**

(a) The **permitting agency** will consider any demonstration presented by the responsible **federal land manager** that **emissions** from a proposed **new source** or the **net emissions increase** from a proposed modification described in subsection (2) of this section would have an **adverse impact on visibility** in any **federal Class I area**, provided that the demonstration is received by the **permitting agency** within thirty days of the **federal land manager's** receipt of the complete application.

(b) If the **permitting agency** concurs with the **federal land manager's** demonstration, the permit or **approval order** for the project either shall be denied, or conditions shall be included in the permit or **approval order** to prevent the adverse impact.

(c) If the **permitting agency** finds that the **federal land manager's** analysis does not demonstrate that the project will have an **adverse impact on visibility** in a **federal Class I area**, the **permitting agency** either shall explain its decision in the public notice required by WAC 173-400-171(2), or, in the case of public notice of proposed action on a **PSD** permit application, state that an explanation of the decision appears in the Fact Sheet for the proposed permit.

(6) **Additional requirements for projects that require a PSD permit.**

(a) For sources impacting **federal Class I areas**, the **permitting agency** shall provide notice to **EPA** of every action related to consideration of the **PSD** permit.

(b) The **permitting agency** shall consider any demonstration received from the responsible **federal land manager** prior to the close of the public comment period on a proposed **PSD** permit that emissions from the proposed **new source** or the **net emissions increase** from a proposed **modification** would have an adverse impact on the air quality-related values (including visibility) of any **mandatory Class I federal area**.

(c) If the **permitting agency** concurs with the demonstration, the permit either shall be denied, or conditions shall be included in the permit to prevent the adverse impact.

(7) **Additional requirements for projects located in nonattainment areas.** In reviewing a **PSD** permit application or **notice of construction application** for a project proposed for construction in an area classified as **nonattainment**, the **permitting agency** must ensure that the **source's emissions** will be consistent with making reasonable progress toward meeting the national goal of preventing any future, and remedying any existing, **impairment** of **visibility** by human-caused air pollution in **mandatory Class I federal areas**. In determining the need for **approval order** conditions to meet this requirement, the **permitting agency** may take into account the costs of compliance, the time necessary for compliance, the energy and nonair quality environmental impacts of compliance, and the useful life of the source.

(8) **Monitoring.** The **permitting agency** may require post-construction monitoring of the impact from the project. The monitoring shall be limited to the impacts on visibility in any **federal Class I area** near the proposed project.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-117, filed 8/15/01, effective 9/15/01.]

WAC 173-400-118 Designation of Class I, II, and III areas. (1) **Designation.**

(a) Lands within the exterior boundaries of Indian reservations may be redesignated only by the appropriate Indian governing body. This restriction does not apply to nontrust

lands within the 1873 Survey Area of the Puyallup Indian Reservation.

(b) All areas of the state must be designated either **Class I**, II or III.

(i) The following areas are the **Class I areas** in Washington state:

(A) Alpine Lakes Wilderness;
(B) Glacier Peak Wilderness;
(C) Goat Rocks Wilderness;
(D) Adams Wilderness;
(E) Mount Rainier National Park;
(F) North Cascades National Park;
(G) Olympic National Park;
(H) Pasayten Wilderness; and
(I) Spokane Indian Reservation.[1]

(ii) All other areas of the state are Class II, but may be redesignated as provided in subsections (2) and (3) of this section.

1. EPA redesignated this land based on a request from the Spokane Tribal Council. See 40 CFR 52.2497 and 56 FR 14862, April 12, 1991, for details.

(2) **Restrictions on area classifications.**

(a) Except for the Spokane Indian Reservation, the **Class I areas** listed in subsection (1) of this section may not be redesignated.

(b) Except as provided in (a) of this subsection, the following areas that exceed 10,000 acres in size may be redesignated as **Class I** or II:

(i) Areas in existence on August 7, 1977:
(A) A national monument;
(B) A national primitive area;
(C) A national preserve;
(D) A national wild and scenic river;
(E) A national wildlife refuge; or
(F) A national lakeshore or seashore.
(ii) Areas established after August 7, 1977:
(A) A national park; or
(B) A national wilderness area.

(3) **Redesignation of area classifications.**

(a) **Ecology** shall propose the redesignation of an area classification as a revision to the **SIP**.

(b) **Ecology** may submit to **EPA** a proposal to redesignate areas of the state as **Class I** or II if:

(i) **Ecology** followed the public involvement procedures in WAC 173-400-171;

(ii) **Ecology** explained the reasons for the proposed redesignation, including a description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation;

(iii) **Ecology** made available for public inspection at least thirty days before the hearing the explanation of the reasons for the proposed redesignation;

(iv) **Ecology** notified other states, tribal governing bodies, and **federal land managers** whose lands may be affected by the proposed redesignation at least thirty days prior to the public hearing;

(v) **Ecology** consulted with the elected leadership of local governments in the area covered by the proposed redesignation before proposing the redesignation; and

(vi) **Ecology** followed these procedures when a redesignation includes any federal lands:

(A) **Ecology** notified in writing the appropriate **federal land manager** on the proposed redesignation. **Ecology** allowed forty-five days for the **federal land manager** to confer with **ecology** and to submit written comments.

(B) **Ecology** responded to any written comments from the **federal land manager** that were received within forty-five days of notification. **Ecology's** response was available to the public in advance of the notice of the hearing.

(I) **Ecology** sent the written comments of the **federal land manager**, along with **ecology's** response to those comments, to the public location as required in WAC 173-400-171 (2)(a).

(II) If **ecology** disagreed with the **federal land manager's** written comments, **ecology** published a list of any inconsistency between the redesignation and the comments of the **federal land manager**, together with the reasons for making the redesignation against the recommendation of the **federal land manager**.

(c) **Ecology** may submit to **EPA** a proposal to redesignate any area other than an area to which subsection (1) of this section applies as Class III if:

(i) The redesignation followed the public involvement requirements of WAC 173-400-171 and 173-400-118(3);

(ii) The redesignation has been specifically approved by the governor of Washington state, after consultation with the appropriate committees of the legislature if it is in session, or with the leadership of the legislature, if it is not in session;

(iii) The redesignation has been approved by local governments representing a majority of the residents of the area to be redesignated. The local governments enacted legislation or passed resolutions concurring in the redesignation;

(iv) The redesignation would not cause, or contribute to, a concentration of any **air contaminant** which would exceed any maximum allowable increase permitted under the classification of any other area or any **National Ambient Air Quality Standard**; and

(v) A **PSD** permit under WAC 173-400-141 for a new **major stationary source** or **major modification** could be issued only if the area in question were redesignated as Class III, and material submitted as part of that application was available for public inspection prior to any public hearing on redesignation of the area as Class III.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-118, filed 8/15/01, effective 9/15/01.]

WAC 173-400-131 Issuance of emission reduction credits. (1) **Applicability.** The owner or operator of any **source** may apply to the **permitting agency** for an **emission reduction credit (ERC)** if the **source** proposes to reduce its **actual emissions** rate for any contaminant regulated by state or federal law for which the **emission** requirement may be stated as an allowable limit in weight of contaminant per unit time for the **emissions units** involved.

(2) **Time of application.** The application for an **ERC** must be made prior to or within one hundred eighty days after the **emission** reduction has been accomplished.

(3) **Conditions.** An **ERC** may be authorized provided the following conditions have been demonstrated to the satisfaction of the **permitting agency**.

(a) The quantity of **emissions** in the **ERC** shall be less than or equal to the old **allowable emissions** rate or the old **actual emissions** rate, whichever is the lesser, minus the new **allowable emissions** rate.

(b) The **ERC** application must include a description of all the changes that are required to accomplish the claimed **emissions** reduction, such as, new control equipment, process modifications, limitation of hours of operation, permanent shutdown of equipment, specified control practices, etc.

(c) The **ERC** must be large enough to be readily quantifiable relative to the **source** strength of the **emissions unit(s)** involved.

(d) No part of the **emission** reductions claimed for credit shall have been used as part of a determination of **net emission increase**, nor as part of an offsetting transaction under WAC 173-400-112 (2)(d), nor as part of a **bubble** transaction under WAC 173-400-120, nor to satisfy **NSPS, NESHAPS, for Source Categories, BACT,** or **LAER**.

(e) Concurrent with or prior to the authorization of an **ERC**, the applicant shall receive (have received) a **regulatory order** or permit that establishes total **allowable emissions** from the **source** or **emissions unit** of the contaminant for which the **ERC** is requested, expressed as weight of contaminant per unit time.

(f) The use of any **ERC** shall be consistent with all other federal, state, and local requirements of the program in which it is used.

(4) **Additional information.** Within thirty days after the receipt of an **ERC** application and all supporting data and documentation, the **permitting agency** may require the submission of additional information needed to review the application.

(5) **Approval.** Within thirty days after all required information has been received, the **permitting agency** shall approve or deny the application, based on a finding that conditions in subsection (3)(a) through (e) of this section have been satisfied or not. If the application is approved, the **permitting agency** shall:

(a) Issue a **regulatory order** or equivalent document to assure that the **emissions** from the **source** will not exceed the allowable **emission** rates claimed in the ERC application, expressed in weight of pollutant per unit time for each **emission unit** involved. The **regulatory order** or equivalent document shall include any conditions required to assure that subsection (3)(a) through (e) of this section will be satisfied. If the **ERC** depends in whole or in part upon the shutdown of equipment, the **regulatory order** or equivalent document must prohibit operation of the affected equipment; and

(b) Issue a certificate of **emission reduction credit**. The certificate shall specify the issue date, the contaminants involved, the **emission** decrease expressed as weight of pollutant per unit time, the **nonattainment area** involved, if applicable, and the **person** to whom the certificate is issued.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-131, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-131, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-131, filed 2/19/91, effective 3/22/91.]

WAC 173-400-136 Use of emission reduction credits (ERC). (1) **Permissible use.** An **ERC** may be used to satisfy the requirements for authorization of a **bubble** under WAC 173-400-120; as a part of a determination of **"net emissions increase;"** or as an offsetting reduction to satisfy the requirements for **new source** review in WAC 173-400-112 or 173-400-113 (2)(c).

(2) **Surrender of ERC certificate.** When an **ERC** is used under subsection (1) of this section, the certificate for the **ERC** must be surrendered to the **permitting agency**. If only a portion of the **ERC** is used, the amended certificate will be returned to the owner.

(3) **Conditions of use.**

(a) An **ERC** may be used only for the **air contaminants** for which it was issued.

(b) The **permitting agency** may impose additional conditions of use to account for temporal and spatial differences between the **emissions units** that generated the **ERC** and the **emissions units** that use the **ERC**.

(4) **Sale of an ERC.** An **ERC** may be sold or otherwise transferred to a person other than the person to whom it was originally issued. Within thirty days after the transfer of ownership, the certificate must be surrendered to the issuing **authority**. After receiving the certificate, the issuing **authority** shall reissue the certificate to the new owner.

(5) **Redemption period.** An unused **ERC** expires ten years after date of original issue.

(6) **Discount due to change in SIP.** If reductions in emissions beyond those identified in the **SIP** are required to meet an **ambient air quality standard**, if the standard cannot be met through controls on operating sources, and if the plan must be revised, an **ERC** may be discounted by **ecology** or the **authority** after public involvement according to WAC 173-400-171. This discount shall not exceed the percentage of additional emission reduction needed to reach attainment.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-136, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-18-007 (Order 93-03), § 173-400-136, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-136, filed 2/19/91, effective 3/22/91.]

WAC 173-400-141 Prevention of significant deterioration (PSD). (1) The **prevention of significant deterioration** or **PSD** program is a construction permitting program for new **major stationary sources** and **major modifications** to existing **major stationary sources** located in areas in **attainment** or in areas that are **unclassifiable** for any **criteria air pollutant**. No **major stationary source** or **major**

modification to which the requirements of this section apply shall **begin actual construction** without a **PSD** permit.

(2) **Early planning encouraged.** In order to develop an appropriate application, the **source** should engage in an early planning process to assess the needs of the facility. An opportunity for a preapplication meeting with **ecology** is available when **ecology** is the **permitting agency**.

(3) **Application.**

(a) The **PSD** application is a form of a **notice of construction application** and the **PSD** permit is a form of an **approval order**.

(b) The applicant shall provide complete copies of its **PSD** application, distributed in the following manner:

(i) Three copies shall be sent to the **permitting agency**. If **ecology** is the **permitting agency**, copies must be sent to the Air Quality Program at P.O. Box 47600, Olympia, WA 98504-7600.

(ii) One copy shall be sent to each of the following **federal land managers**:

(A) U.S. Department of the Interior - National Park Service; and

(B) U.S. Department of Agriculture - U.S. Forest Service.

(iii) If the local **authority** is not the **permitting agency** and the project lies within the territory of a local **authority**, one copy shall be sent to the **authority** in whose territory the **source** is located.

(iv) One copy shall be sent to **EPA**.

(c) **Ecology** shall provide the names and addresses of the **federal land managers**.

(4) **Enforcement.**

Ecology or the **permitting agency** with authority over the source under chapter 173-401 WAC, the Operating permit regulation, shall receive all required reports and enforce the conditions in the **PSD** permit.

(5) **Applicable requirements.**

A **PSD** permit must comply with the following requirements:

(a) WAC 173-400-110 - **New source** review;

(b) WAC 173-400-113 - Requirements for **new sources** in **attainment** or **unclassifiable areas**;

(c) WAC 173-400-117 - Special protection requirements for **federal Class I areas**;

(d) WAC 173-400-171 - Public involvement; and

(e) The following subparts of 40 CFR 52.21, in effect on July 1, 2000, which are adopted by reference. Exceptions are listed in (5)(e)(i), (ii), (iii), and (iv):

40 CFR 52.21 (b)	Definitions.
40 CFR 52.21 (c)	Ambient air increments.
40 CFR 52.21 (d)	Ambient air ceilings.
40 CFR 52.21 (h)	Stack heights.
40 CFR 52.21 (i)	Review of major stationary sources and major modifications - source applicability and exemptions.
40 CFR 52.21 (j)	Control technology review.
40 CFR 52.21 (k)	Source impact analysis.
40 CFR 52.21 (l)	Air quality models.
40 CFR 52.21 (m)	Air quality analysis.
40 CFR 52.21 (n)	Source information.
40 CFR 52.21 (o) (1) and (2)	Additional impact analysis.
40 CFR 52.21 (r)	Source obligation.
40 CFR 52.21 (v)	Innovative control technology.
40 CFR 52.21 (w)	Permit rescission.

(i) Exception to adopting 40 CFR 52.21 by reference. Every use of the word "administrator" in 40 CFR 52.21 means **ecology** or the **authority** except for the following:

(A) In 40 CFR 52.21 (b)(17), the definition of federally enforceable, "administrator" means the **EPA** administrator.

(B) In 40 CFR 52.21 (l)(2), air quality models, "administrator" means the **EPA** administrator.

(ii) Exception to adopting 40 CFR 52.21 by reference. The following definitions apply to this section instead of the definitions in 40 CFR 52.21(b):

(A) **Major modification** as defined in WAC 173-400-113;

(B) **Major stationary source** as defined in WAC 173-400-113;

(C) **Net emissions increase** as defined in WAC 173-400-113;

(D) **Significant** as defined in WAC 173-400-113; and

(E) **Volatile organic compound** as defined WAC 173-400-030.

(iii) Exception to adopting 40 CFR 52.21 by reference. The following definition of "secondary emissions" applies to this section instead of the definition in 40 CFR 52.21 (b)(18): **"Secondary emissions"** means **emissions** which would occur as a result of the construction or operation of a **major stationary source** or **major modification**, but do not come from the **major stationary source** or **major modification** itself. For the purpose of this section, secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the stationary source or modification which causes the secondary emissions. Secondary emissions may include, but are not limited to:

(A) **Emissions** from ships or trains located at the new or modified **stationary source**; and

(B) **Emissions** from any off-site support facility which would not otherwise be constructed or increase its emissions as a result of the construction or operation of the **major stationary source** or **major modification**.

(iv) Exception to adopting 40 CFR 52.21 by reference. Each reference in 40 CFR 52.21(i) to "paragraphs (j) through (r) of this section" is amended to state "paragraphs (j) through (n) of this section, paragraphs (o)(1) and (o)(2) of this section, paragraph (r) of this section, WAC 173-400-117 and 173-400-171."

(6) **Notifying EPA.** The **permitting agency** shall provide notice to **EPA** of every action related to consideration of the permit.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-141, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 96-19-054 (Order 94-35), § 173-400-141, filed 9/13/96, effective 10/14/96; 93-18-007 (Order 93-03), § 173-400-141, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-141, filed 2/19/91, effective 3/22/91.]

WAC 173-400-151 Retrofit requirements for visibility protection. (1) The requirements of this section apply to an **existing stationary facility**. An **"existing stationary facility"** means a **stationary source** of **air contaminants** that meets all of these conditions:

(a) The **stationary source** must have the potential to emit 250 tons per year or more of any **air contaminant**. **Fugitive emissions**, to the extent quantifiable, must be counted in determining the **potential to emit**; and

(b) The **stationary source** was not in operation prior to August 7, 1962, and was in existence on August 7, 1977.

(c) For purposes of determining whether a **stationary source** is an existing stationary facility, the term "building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same major group (i.e., which have the same two digit code) as described in the *Standard Industrial Classification Manual, 1972,* as amended.

(2) Ecology shall identify each **existing stationary facility** which may reasonably be anticipated to cause or contribute to **visibility impairment** in any **mandatory Class 1 federal area** in Washington and any adjacent state.

(3) For each **existing stationary facility** identified under subsection (2) of this section, the **permitting agency** shall determine **BART** for the **air contaminant** of concern and any additional air pollution control technologies that are to be required to reduce impairment from the **existing stationary facility**.

(4) Each **existing stationary facility** shall apply **BART** as new technology for control of the **air contaminant** becomes reasonably available if:

(a) The **existing stationary facility** emits the **air contaminant** contributing to **visibility impairment**;

(b) Controls representing **BART** for that **air contaminant** have not previously been required under this section; and

(c) The **impairment of visibility** in any **mandatory Class 1 federal area** is **reasonably attributable** to the emissions of the air contaminant.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-151, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 91-05-064 (Order 90-06), § 173-400-151, filed 2/19/91, effective 3/22/91.]

WAC 173-400-171 Public involvement. (1) **Applicability.**

(a) **Ecology** or the **authority** must provide public notice before approving or denying any of the following types of applications or other actions:

(i) **Notice of construction application** for any **new** or **modified source** or **emissions unit**, if a **significant net increase** in **emissions** of any **air pollutant** regulated by state or federal law would result; or

(ii) Any preliminary determination to approve or disapprove a **PSD** permit application, except an administrative amendment to an existing permit; or

(iii) An extension of the deadline to begin construction in a **PSD** permit; or

(iv) Any use of a modified or substituted air quality model, other than a guideline model in Appendix W of 40 CFR Part 51 (in effect on July 1, 2000) as part of review under WAC 173-400-112, 173-400-141, or 173-400-117; or

(v) Any **order** to determine **RACT**; or

(vi) An **order** to establish a compliance schedule or a variance; or

(vii) An **order** to demonstrate the creditable height of a stack which exceeds the **GEP** formula height and sixty-five meters, by means of a fluid model or a field study, for the purposes of establishing an **emission limitation**; or

(viii) An **order** to authorize a **bubble**; or

(ix) **Notice of construction application** or **regulatory order** used to establish a **creditable emission reduction**;

(x) An **order** issued under WAC 173-400-091 that establishes limitations on a **source's potential to emit**; or

(xi) Any application or other proposed action made under this chapter in which **ecology** or the **authority** determines there is substantial public interest.

(b) Ecology must provide notice on the following actions:

(i) A Washington state recommendation that will be submitted by the **director** of **ecology** to **EPA** for approval of a **SIP** revision, including plans for attainment, maintenance, and visibility protection; or

(ii) A Washington state recommendation to **EPA** for designation or redesignation of an area as **attainment**, **nonattainment**, or **unclassifiable**; or

(iii) A Washington state recommendation to **EPA** for a change of boundaries of an **attainment** or **nonattainment** area; or

(iv) A Washington state recommendation to **EPA** for redesignation of an area under WAC 173-400-118.

(c) A **notice of construction application** designated for integrated review with an application to issue or modify an operating permit shall be processed in accordance with the operating permit program procedures and deadlines. A project designated for integrated review that includes a **PSD** permit application, a **notice of construction application** for a **major modification** in a **nonattainment area**, or a **notice of construction application** for a **major stationary source** in a **nonattainment area** must also comply with public notice requirements in WAC 173-400-171.

(2) **Public notice.** Public notice shall be made only after all information required by **ecology** or the **authority** has been

submitted and after applicable preliminary determinations, if any, have been made. The applicant or other initiator of the action must pay the cost of providing public notice. Public notice shall include:

(a) Availability for public inspection. The information submitted by the applicant, and any applicable preliminary determinations, including analyses of the effects on air quality, must be available for public inspection in at least one location near the proposed project. Exemptions from this requirement include information protected from disclosure under any applicable law, including, but not limited to, RCW 70.94.205.

(i) For **PSD** permit determinations, **ecology** must include a copy or summary of other materials considered in making the preliminary determination.

(ii) For a redesignation of a class area under WAC 173-400-118, **ecology** must make available for public inspection at least thirty days before the hearing the explanation of the reasons for the proposed redesignation.

(iii) For a revision of the **SIP** subject to subsection (1)(b)(iii) of this section, **ecology** must make available for public inspection the information related to the action at least thirty days before the hearing.

(b) Newspaper publication. Public notice of the proposed project must be published in a newspaper of general circulation in the area of the proposed project and must include:

(i) The name and address of the owner or operator and the facility;

(ii) A brief description of the proposal;

(iii) The location of the documents made available for public inspection;

(iv) A thirty-day period for submitting written comment to **ecology** or the **authority**;

(v) A statement that a public hearing may be held if **ecology** or the **authority** determines within a thirty-day period that significant public interest exists.

(vi) The length of the public comment period in the event of a public hearing;

(vii) For projects subject to Special protection requirements for federal Class I areas in WAC 173-400-117 (5)(c), public notice shall either explain the **permitting agency's** decision or state that an explanation of the decision appears in the Fact Sheet for the proposed **PSD** permit; and

(viii) For a redesignation of an area under WAC 173-400-118, public notice shall state that an explanation of the reasons for the proposed redesignation is available for review at the public location.

(c) Notifying EPA. A copy of the public notice will be sent to the **EPA** Region 10 regional administrator.

(d) Additional public notice requirements for **PSD** projects. For projects subject to the **PSD** program in WAC 173-400-141, the **permitting agency** shall meet the public notice requirements in subsection (2)(a), (b), and (c) of this section, WAC 173-400-117(6), and the following requirements:

(i) **PSD** Permit Fact Sheet. All **PSD** permit preliminary determinations and final permits will be accompanied by a fact sheet that includes the following information:

(A) A brief description of the type of facility or activity subject to permitting;

(B) The type and quantity of pollutants proposed to be emitted into the air;

(C) A brief summary of the BACT options considered and the reasons why the selected BACT level of control was selected;

(D) A brief summary of the basis for permit conditions;

(E) The degree of increment consumption expected to result from operation of the facility at the permitted levels;

(F) An analysis of the impacts on air quality related values in **federal Class I** areas affected by the project; and

(G) An analysis of the impacts of the proposed **emissions** on visibility following the requirements in WAC 173-400-117.

(ii) For **PSD** permit preliminary determinations, the public notice required by subsection (2)(b) of this section shall contain:

(A) The name and address of the applicant;

(B) The location of the proposed project;

(C) A brief description of the project proposal;

(D) The preliminary determination to approve or disapprove the application;

(E) How much increment is expected to be consumed by this project;

(F) The name, address, and telephone number of the person to contact for further information;

(G) A brief explanation of how to comment on the project; and

(H) An explanation on how to request a public hearing.

(iii) For **PSD** permit preliminary determinations, a copy of the public notice required by subsection (2)(b) of this section shall be sent to:

(A) The applicant;

(B) U.S. Department of the Interior - National Park Service;

(C) U.S. Department of Agriculture - Forest Service;

(D) **EPA** Region 10;

(E) Any tribal governing body whose lands may be affected by **emissions** from the project;

(F) The chief executive of the city where the project is located;

(G) The chief executive of the county where the project is located;

(H) The **authority** in whose territory the project is located;

(I) The comprehensive regional land use planning agency whose lands may be affected by **emissions** from the project;

(J) Individuals or organizations that requested notification of the specific project proposal;

(K) Other individuals who requested notification of **PSD** permits;

(L) Any state within 100 km of the proposed project; and

(M) The location for public inspection of material required under subsection (2)(a) of this section.

(iv) A copy of the **PSD** permit preliminary determination and the fact sheet must be sent to:

(A) The applicant;

(B) U.S. Department of the Interior - National Park Service;

(C) U.S. Department of Agriculture - Forest Service;

(D) **EPA** Region 10;

(E) The **authority** in whose territory the project is located;

(F) Individuals or organizations who request a copy; and

(G) The location for public inspection of material required under subsection (2)(a) of this section.

(v) The final **PSD** permit determination shall include the following:

(A) A copy of the final **PSD** permit or the determination to deny the permit;

(B) A summary of the comments received;

(C) The **permitting agency's** response to those comments;

(D) A description of what approval conditions changed from the preliminary determination; and

(E) A cover letter that includes an explanation of how the final determination may be appealed.

(vi) The **permitting agency** shall mail a copy of the cover letter that accompanies the final **PSD** permit determination to:

(A) The applicant;

(B) U.S. Department of the Interior - National Park Service;

(C) U.S. Department of Agriculture - Forest Service;

(D) **EPA** Region 10;

(E) Any tribal governing body whose lands may be affected by **emissions** from project;

(F) The chief executive of the city where the project is located;

(G) The chief executive of the county where the project is located;

(H) The **authority** in whose territory the project is located;

(I) The comprehensive regional land use planning agency whose lands may be affected by **emissions** from the project;

(J) Individuals or organizations that requested notification of the specific project proposal;

(K) Other individuals who requested notification of **PSD** permits;

(L) Any state within 100 km of the proposed project; and

(M) The location for public inspection of material required under subsection (2)(a) of this section.

(vii) The **permitting agency** shall mail a copy of the final **PSD** permit determination to:

(A) The applicant;

(B) U.S. Department of the Interior - National Park Service;

(C) U.S. Department of Agriculture - Forest Service;

(D) **EPA** Region 10;

(E) The **authority** in whose territory the project is located;

(F) Individuals or organizations who request a copy; and

(G) The location for public inspection of material required under subsection (2)(a) of this section.

(e) Additional public notice requirements for a **SIP** revision. For a revision to the **SIP** that is submitted by the **director** of **ecology**, **ecology** must publish the public notice required by subsection (2)(b) of this section in the *Washington State Register* in advance of the date of the public hearing.

(3) **Public comment.**

(a) The public comment period must be at least the thirty-day period for written comment specified in the public notice.

(b) If a public hearing is held, the public comment period must extend through the hearing date

(c) **Ecology** or the **authority** shall make no final decision on any application or action of any type described in subsection (1) of this section until the public comment period has ended and any comments received during the public comment period have been considered.

(4) **Public hearings.**

(a) The applicant, any interested governmental entity, any group, or any person may request a public hearing within the thirty-day public comment period. A request must indicate the interest of the entity filing it and why a hearing is warranted. **Ecology** or the **authority** may hold a public hearing if it determines significant public interest exists. **Ecology** or the **authority** will determine the location, date, and time of the public hearing.

(b) **Ecology** must hold a hearing on the following actions:

(i) A Washington state recommendation to **EPA** that will be submitted by the **director** of **ecology** for approval of a **SIP** revision;

(ii) A Washington state recommendation to **EPA** for a change of boundaries of an **attainment** or **nonattainment** area;

(iii) A Washington state recommendation to **EPA** for designation of an area as **attainment**, **nonattainment**, or **unclassifiable**; and

(iv) A Washington state recommendation to **EPA** to redesignate an area under WAC 173-400-118.

(c) **Ecology** must provide at least thirty days prior notice of a hearing required under subsection (4)(b) of this section.

(5) **Other requirements of law.** Whenever procedures permitted or mandated by law will accomplish the objectives of public notice and opportunity for comment, those procedures may be used in lieu of the provisions of this section. This subsection does not apply to a **PSD** permit application, a **notice of construction application** for a **major modification**, a **notice of construction application** for a **major stationary source**, and any action in WAC 173-400-171 (1)(b).

(6) **Public information.** All information, except information protected from disclosure under any applicable law, including, but not limited to, RCW 70.94.205, is available for public inspection at the issuing agency. This includes copies of **notices of construction applications**, **orders**, and **modifications**.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-400-171, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter

70.94 RCW. 95-07-126 (Order 93-40), § 173-400-171, filed 3/22/95, effective 4/22/95; 93-18-007 (Order 93-03), § 173-400-171, filed 8/20/93, effective 9/20/93; 91-05-064 (Order 90-06), § 173-400-171, filed 2/19/91, effective 3/22/91.]

Chapter 173-401 WAC
OPERATING PERMIT REGULATION

WAC

WAC 173-401-300 Applicability. (1) Chapter 401 sources. The provisions of this chapter apply in all areas of the state of Washington to the following sources:

(a) Any source required by the FCAA to have an operating permit. These include the following sources:

(i) Any major source as defined in WAC 173-401-200(18).

(ii) Any source, including an area source, subject to a standard, limitation, or other requirement under section 111 (Standards of Performance for New Stationary Sources) of the FCAA. A small municipal waste combustion unit constructed on or before August 30, 1999, and regulated under WAC 173-400-050(5) becomes subject to this chapter on July 1, 2002.

(iii) Any source, including an area source, subject to a standard or other requirement under section 112 of the FCAA, except that a source is not required to obtain a permit solely because it is subject to regulations or requirements under section 112(r) (Prevention of Accidental Releases) of the FCAA.

(iv) Any solid waste incineration units required to obtain permits under section 129 of the FCAA.

A commercial and industrial solid waste incineration unit constructed on or before November 30, 1999, and regulated under WAC 173-400-050(4) becomes subject to this chapter on July 1, 2002.

(v) Any "affected source" regulated under Title IV (Acid Deposition Control) of the FCAA.

(vi) Any source in a source category designated by the EPA pursuant to 40 CFR Part 70, as amended through April 7, 1993.

(b) Any source that the permitting authority determines may cause or contribute to air pollution in such quantity as to create a threat to the public health or welfare under RCW 70.94.161(4) using the procedures in subsection (5) of this section.

(c) Any other source which chooses to apply for a permit.

(d) Deferral. A source subject to the secondary aluminum production requirements in 40 CFR Part 63, Subpart RRR (in effect on July 1, 2000) that is not a major source and is not located at a major source as defined under 40 CFR 63.2 and is not otherwise required to obtain a chapter 401 permit is deferred from chapter 173-401 WAC until December 4, 2004. This category includes sweat furnaces, aluminum scrap shredders, thermal chip dryers, scrap dryers/delacquering kilns/decoating kilns, group 2 furnaces (processing clean charge only and no reactive fluxing), dross-only furnaces, and rotary dross coolers.

(e) A municipal solid waste landfill constructed, reconstructed or modified before May 30, 1991, and regulated under WAC 173-400-070(9) becomes subject to this chapter on September 20, 2001.

Note: Under 40 CFR 62.14352(e) (in effect on July 1, 2000), an affected landfill must have submitted its chapter 401 application so that by April 6, 2001, the permitting agency was able to determine that it was timely and complete. Under 40 CFR 70.7(b), an affected source may not operate if it has not submitted a timely and complete application.

(2) Source category exemptions.

(a) All sources listed in subsection (1)(a) of this section that are not major sources, affected sources, or solid waste incineration units required to obtain a permit pursuant to section 129(e) of the FCAA, are exempted from the obligation to obtain a chapter 401 permit until such time that:

(i) Ecology completes a rulemaking to determine whether nonmajor sources should be required to obtain permits. During this rulemaking, ecology will consider the compliance information contained in individual permit applications when evaluating the regulatory effectiveness and administrative feasibility of issuing operating permits to nonmajor sources relative to other regulatory options. This rulemaking must be completed no later than three years after the effective date of the permit program; or

(ii) The administrator completes a rulemaking to determine how the program should be structured for nonmajor sources and determines that such sources must obtain operating permits and ecology completes a rule making to adopt EPS's revised applicability criteria.

(b) Subsection (2)(a) of this section shall not apply to nonmajor sources subject to a standard or other requirement established under either section 111 or section 112 of the FCAA after July 21, 1992, if, during those rulemakings, the administrator determines that such sources must obtain a permit at an earlier date and, subsequently, ecology completes a rule making to adopt EPS's applicability criteria.

(c) Any source listed in (a) of this subsection exempt from the requirement to obtain a permit under this section may opt to apply for a permit under this chapter.

(d) The following source categories are exempt from the obligation to obtain permit:

(i) All sources and source categories that would be required to obtain a permit solely because they are subject to 40 CFR part 60, Subpart AAA - Standards of Performance for New Residential Wood Heaters; and

(ii) All sources and source categories that would be required to obtain a permit solely because they are subject to part 61, Subpart M - National Emission Standard for Hazardous Air Pollutants for Asbestos, section 61.145, Standard for Demolition and Renovation.

(3) Emissions units and chapter 401 sources.

The permitting authority shall include in the permit all applicable requirements for all relevant emissions units in the source.

(4) Fugitive emissions. Fugitive emissions from a chapter 401 source shall be included in the permit application and the permit in the same manner as stack emissions, regardless

of whether the source category in question is included in the list of sources contained in the definition of major source.

(5) Process for determining threat to public health or welfare. The following criteria shall be used to identify sources that are covered pursuant to subsection (1)(b) of this section:

(a) The source may cause or to contribute air pollution in such quantity as to create a violation of any ambient air quality standard as demonstrated by a dispersion modeling analysis performed in accordance with EPA's dispersion modeling guidelines, monitoring, or other appropriate methods; or

(b) The source may cause or contribute to air pollution in such quantity as to create a significant ambient level of any class A or class B toxic air pollutant contained in chapter 173-460 WAC as demonstrated by a dispersion modeling analysis done in accordance with EPA's dispersion modeling guidelines, monitoring, or other appropriate methods.

(c) Small business stationary sources otherwise covered under (a) and (b) of this subsection are exempt except when all of the following requirements are satisfied:

(i) The source is in an area that currently exceeds or has been projected by ecology to exceed within five years any federal or state air quality standard. Prior to determining that any area threatens to exceed a standard, ecology shall hold a public hearing or hearings within the threatened area.

(ii) Ecology provides justification that requiring a source to have a permit is necessary to meet or to prevent exceeding a federal or state air quality standard.

(6) Permitting authorities shall develop and maintain a list of names of chapter 401 sources within their jurisdictions. This list shall be made available to the public. A chapter 401 source inadvertently omitted from this list is not exempted from the requirement to obtain a permit under this chapter.

(7) Federally enforceable limits. Any source which is defined as a chapter 401 source solely because its potential to emit exceeds the annual tonnage thresholds defined in WAC 173-401-200(18) shall be exempt from the requirement to obtain an operating permit when federally enforceable conditions which limit that source's potential to emit to levels below the relevant tonnage thresholds have been established for that source.

(a) In applying for an exemption under this subsection, the owner or operator of the source shall demonstrate to the permitting authority that the source's potential to emit, taking into account any federally enforceable restrictions assumed by the source, does not exceed the tonnage thresholds defined in WAC 173-401-200(18). Such demonstrations shall be in accordance with WAC 173-401-520 and shall contain emissions measurement and monitoring data, location of monitoring records, and other information necessary to support the source's emission calculations.

(b) Permitting authorities may use the following approaches to establish federally enforceable limitations:

(i) Regulatory orders. The permitting authority may establish source-specific conditions in a regulatory order issued pursuant to WAC 173-400-090.

(ii) Notice of construction approvals. The permitting authority may establish source-specific conditions in a notice of construction approval issued pursuant to state or local regulations contained in an EPA-approved state implementation plan; or

(iii) General permits. The permitting authority may establish source-category requirements which limit a source's potential to emit through a general permit issued pursuant to RCW 70.94.161(11). Following EPA approval of the general permit, limitations on potential to emit become federally enforceable against a particular source after that source applies for, and receives coverage under the general permit.

(c) A source receiving a federally enforceable limit on its potential to emit shall annually certify that its potential to emit is less than that which would require the source to obtain an operating permit. Such certifications shall contain the information specified in (a) of this subsection.

(d) Notice of issuance of any order or permit which limits a source's potential to emit shall be published in the permit register pursuant to WAC 173-401-805 (2)(e).

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-401-300, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-20-075 (Order 91-68), § 173-401-300, filed 10/4/93, effective 11/4/93.]

WAC 173-401-615 Monitoring and related recordkeeping and reporting requirements. (1) Monitoring. Each permit shall contain the following requirements with respect to monitoring:

(a) All emissions monitoring and analysis procedures or test methods required under the applicable requirements, including any procedures and methods promulgated pursuant to sections 504(b) or 114 (a)(3) of the FCAA;

(b) Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to subsection (3) of this section. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this paragraph; and

(c) As necessary, requirements concerning the use, maintenance, and, where appropriate, installation of monitoring equipment or methods.

(2) Recordkeeping. With respect to recordkeeping, the permit shall incorporate all applicable recordkeeping requirements and require, where applicable, the following:

(a) Records of required monitoring information that include the following:

(i) The date, place as defined in the permit, and time of sampling or measurements;

(ii) The date(s) analyses were performed;

(iii) The company or entity that performed the analyses;

(iv) The analytical techniques or methods used;

(v) The results of such analyses; and

(vi) The operating conditions existing at the time of sampling or measurement;

(b) A record describing changes made at the source that result in emissions of a regulated air pollutant subject to an

applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes.

(c) Retention of records of all required monitoring data and support information for a period of five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

(3) Reporting. With respect to reporting, the permit shall incorporate all applicable reporting requirements and require the following:

(a) Submittal of reports of any required monitoring at least once every six months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with WAC 173-401-520.

(b) Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. The permitting authority shall define "prompt" in each individual permit in relation to the degree and type of deviation likely to occur and the applicable requirement. For deviations which represent a potential threat to human health or safety, "prompt" means as soon as possible, but in no case later than twelve hours after the deviation is discovered. The source shall maintain a contemporaneous record of all deviations. Other deviations shall be reported no later than thirty days after the end of the month during which the deviation is discovered or as part of routine emission monitoring reports.

(4) Compliance assurance monitoring. 40 CFR Part 64, in effect on July 1, 2000, is adopted by reference.

[Statutory Authority: Chapter 70.94 RCW, RCW 70.94.141, [70.94.]152, [70.94.]331, [70.94.]510 and 43.21A.080. 01-17-062 (Order 99-06), § 173-401-615, filed 8/15/01, effective 9/15/01. Statutory Authority: Chapter 70.94 RCW. 93-20-075 (Order 91-68), § 173-401-615, filed 10/4/93, effective 11/4/93.]

Chapter 173-503 WAC

INSTREAM RESOURCES PROTECTION PROGRAM—LOWER AND UPPER SKAGIT WATER RESOURCES INVENTORY AREA (WRIA 3 AND 4)

WAC

WAC 173-503-010 General provision. These rules apply to waters within the Lower and Upper Skagit water resources inventory area (WRIA 3 and 4), as defined in WAC 173-500-040, excluding the Samish River subbasin, Fidalgo, Guemes, Cypress, Hope and Goat islands. This chapter is promulgated pursuant to chapter 90.54 (Water Resources Act of 1971), chapter 90.22 RCW (Minimum water flows and levels), and chapter 173-500 WAC (Water resources management program).

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-010, filed 3/14/01, effective 4/14/01.]

WAC 173-503-020 Purpose. The purpose of this chapter is to retain perennial rivers, streams, and lakes in the Lower and Upper Skagit water resources inventory area and Cultus Mt. Tributaries with instream flows and levels necessary to provide for the protection and preservation of wildlife, fish, scenic, aesthetic, and other environmental values, and navigational values, as well as recreation and water quality.

Chapter 90.54 RCW (Water Resources Act of 1971) requires that utilization and management of waters of the state be guided by a number of fundamentals, including:

Uses of water for domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state, are declared to be beneficial. (RCW 90.54.020(1))

The quality of the natural environment shall be protected and, where possible, enhanced, as follows:

Perennial rivers and streams of the state shall be retained with base flows necessary to provide for the protection and preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values. Lakes and ponds shall be retained substantially in their natural condition. Withdrawals of water which would conflict therewith shall be authorized only in those situations where it is clear that overriding considerations of the public interest will be served. (RCW 90.54.020 (3)(a))

Waters of the state shall be of high quality. Regardless of the quality of the waters of the state, all wastes and other materials and substances proposed for entry into said waters shall be provided with all known, available, and reasonable methods of treatment prior to entry. Notwithstanding that standards of quality established for the waters of the state would not be violated, wastes and other materials and substances shall not be allowed to enter such waters which will reduce the existing quality thereof, except in those situations where it is clear that overriding considerations of the public interest will be served. (RCW 90.54.020 (3)(b))

In administering and enforcing this regulation, the department's actions shall be consistent with the provisions of chapter 90.54 RCW.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-020, filed 3/14/01, effective 4/14/01.]

WAC 173-503-030 Findings. Ecology finds that:

(1) The magnitude or variability of flows are important in maintaining the aquatic ecosystem that sustains both fish and other valuable resources. Criteria to limit total withdrawals of water from the Lower Skagit River were developed to protect the aquatic ecosystem in the region covered by this rule.

(2) To protect the estuary area below river mile 8.1 the duration of flow inundation of at least one foot of depth, in selected estuary habitat, can be reduced no more than ten percent from existing conditions from the date of enactment of this regulation. This criterion applies to the period of February through August to withdrawals from the Skagit River. Total withdrawals greater than eight hundred thirty-six cubic feet per second during that period will result in a greater than ten percent deviation from existing conditions and therefore would result in harm to the fisheries resources and aquatic ecosystem in the region covered by this rule.

(3) Protection of the aquatic ecosystem of the estuary in the months of September through January requires that the total withdrawals of water from the Skagit River not exceed 1/10 of the fifty percent exceedance flow for each month, based on the period of record (1/1/41 - 12/31/95) for the U.S. Geological Survey (USGS) stream gage on the Skagit River near Mt. Vernon, WA (Sta. #12-2005-00) in order to maintain channel morphology and other estuarine and riverine functions. This equates to a low point of eight hundred thirty cubic feet per second during the month of September. Total withdrawals greater than eight hundred thirty cubic feet per second during the month of September will not protect and preserve fish, wildlife and other environmental values and therefore would be harmful to fisheries resources and the aquatic ecosystem in the region covered by this rule in violation of chapter 90.54 RCW.

(4) The rules setting minimum flows in the Lower and Upper Skagit River (WRIA 3 and 4) (WAC 173-503-040) and finding certain waters available (WAC 173-503-050) are necessary to protect and preserve wildlife, fish, scenic, aesthetic and other environmental values.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-030, filed 3/14/01, effective 4/14/01.]

WAC 173-503-040 Establishment of instream flows. (1) Stream management units and associated control stations are established as follows:

Stream Management Unit Information

Stream Management Unit Name Control Station No.	Control Station by River Mile and Section, Township and Range; Latitude and Longitude	Stream Management Reach
Skagit Mainstem:		
Skagit River near Mt. Vernon, WA USGS Sta. #12-2005-00	River Mile (RM) 15.7	From mouth of Skagit River including tidal fluctuation to headwaters.*
Cultus Mountain Tributaries:		
Mundt Creek	Stream gage will be installed at RM 3.4 (Sec/Twn/Rng; Lat/Long)	From mouth to headwaters.
Turner Creek	Stream gage will be installed at RM 4.2 (Sec/Twn/Rng; Lat/Long)	From mouth to headwaters.
Gilligan Creek	Stream gage will be installed at RM 3.2 (Sec/Twn/Rng; Lat/Long)	From mouth to headwaters.
Salmon Creek	Staff gage periodically recorded will be installed at RM 4.3 (Sec/Twn/Rng; Lat/Long)	From mouth to headwaters.

*Other additional control stations and instream flows may be established in WRIAs 3 & 4 to improve water management.

(2) Instream flows are established for the stream management units in WAC 173-503-040(1) as follows (See Figures 1 through 3):

Instream Flows as measured at USGS Sta. #12-2005-00 (Instantaneous cubic feet per second)

Month	Day	USGS Sta. #12-2005-00 Skagit River
Jan.	1–31	10,000
Feb.	1–29	10,000
Mar.	1–31	10,000
Apr.	1–30	12,000
May	1–31	12,000
Jun.	1–30	12,000
Jul.	1–31	10,000
Aug.	1–31	10,000
Sep.	1–30	10,000
Oct.	1–31	13,000
Nov.	1–15	13,000
	16–30	11,000
Dec.	1–15	11,000
	16–31	10,000

Instream Flows for Cultus Mountain Tributaries, WRIA 3 (Instantaneous cubic feet per second)

Month	Day	RM 3.4 Mundt Creek	RM 4.2 Turner Creek	RM 3.2 Gilligan Creek	RM 4.3 Salmon Creek
Jan.	1-31	6.4	7.9	19.8	4.0
Feb.	1-29	6.4	5.4	19.8	4.0
Mar.	1-15	6.4	5.4	19.8	4.0
	16-31	9.4	5.4	27.7	4.0
Apr.	1-30	9.4	7.9	31.7	4.0
May	1-31	9.4	7.9	31.7	1.4
Jun.	1-30	9.4	4.9	31.7	1.4
Jul.	1-31	7.6	4.9	39.6	1.4
Aug.	1-31	7.6	4.9	39.6	1.4
Sep.	1-30	7.6	4.9	39.6	4.0

Oct.	1-31	7.6	7.9	23.8	4.0
Nov.	1-30	9.4	7.9	27.7	4.0
Dec.	1-31	9.4	7.9	27.7	4.0

(3) Instream flow hydrograph.

Figure 1

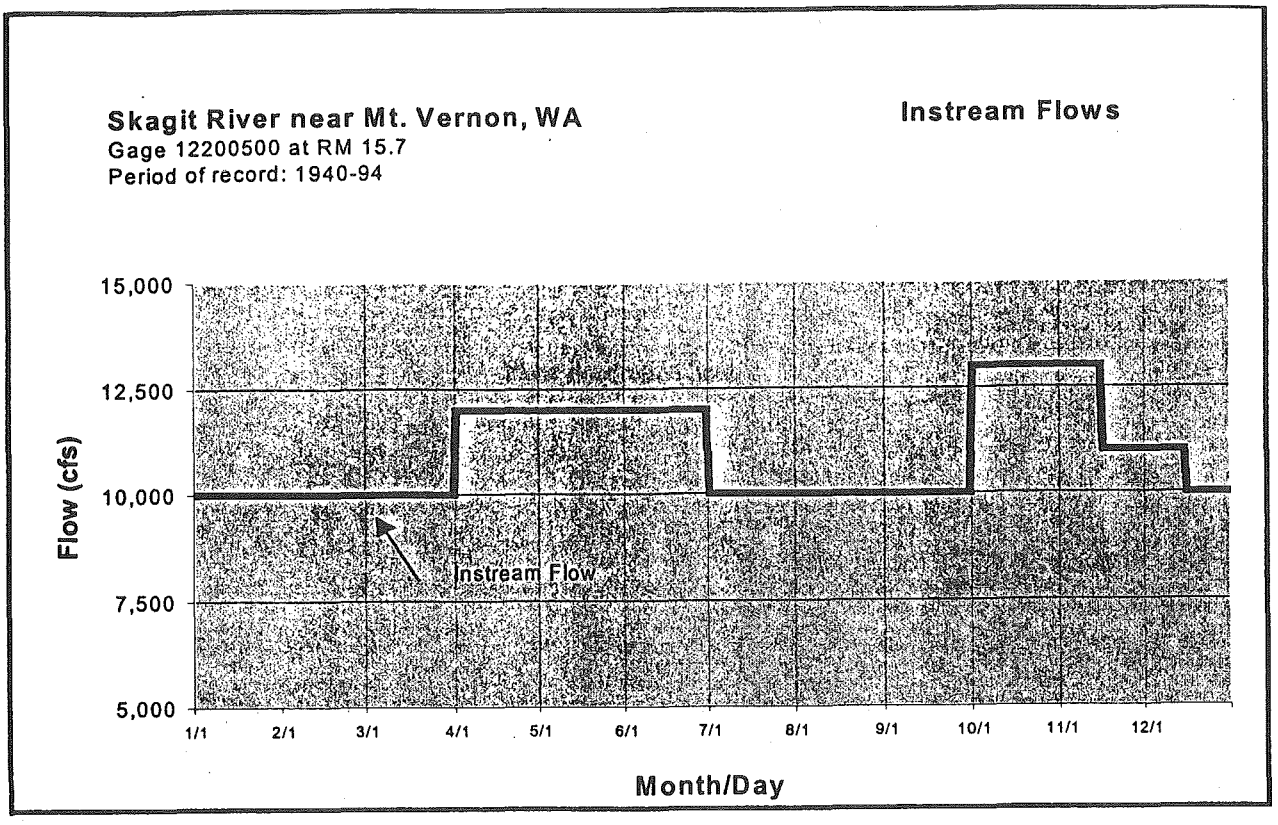


Figure 2

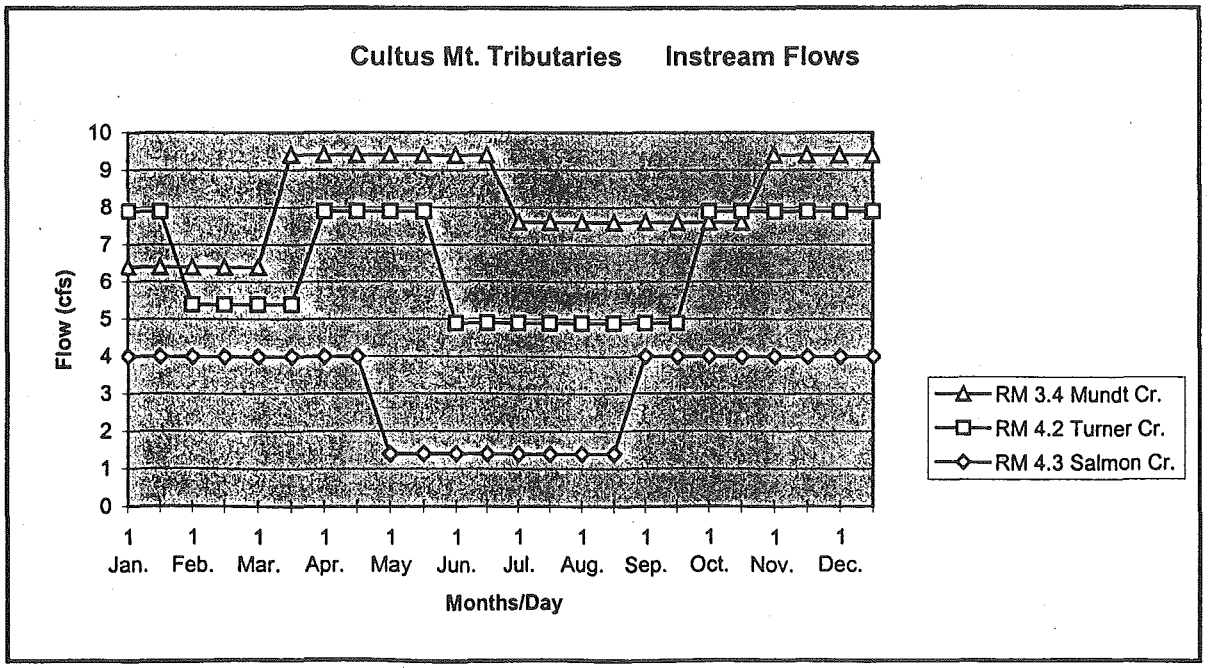
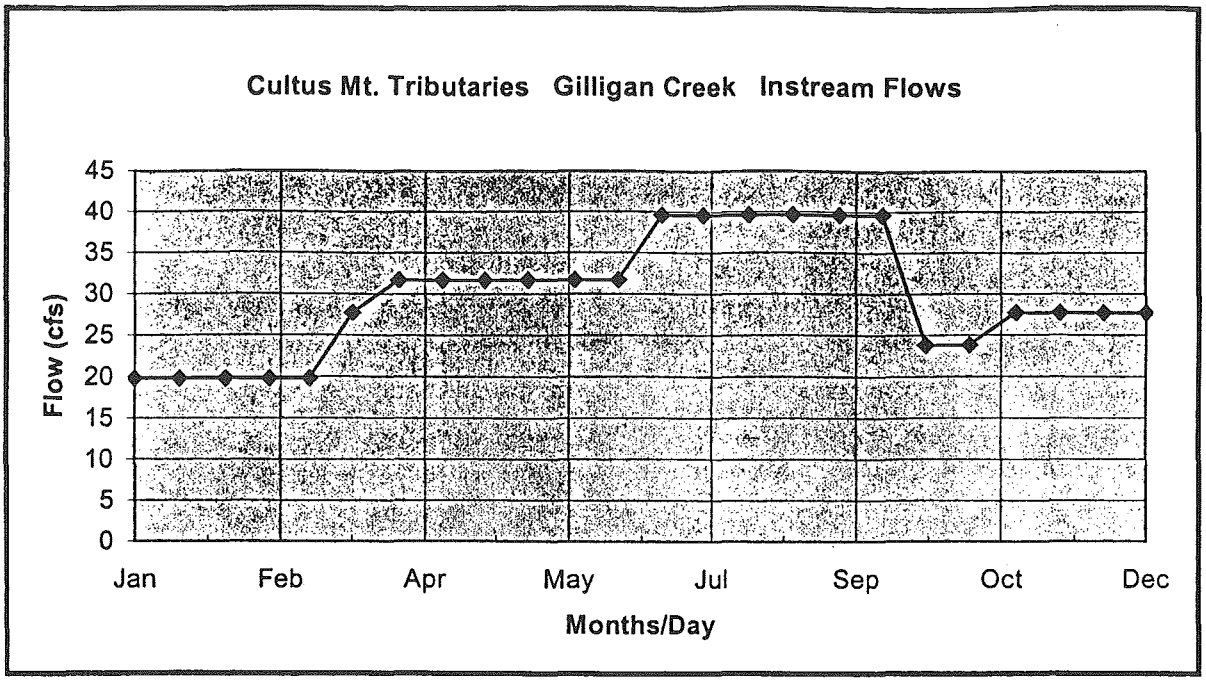


Figure 3



(4) The instream flow hydrographs, as represented in Figures 1 through 3 in WAC 173-503-040(3) shall be used for identification of instream flows.

(5) Future consumptive water right permits issued hereafter for diversion of surface water in the Lower and Upper Skagit (WRIA 3 and 4) and perennial tributaries, and withdrawal of ground water in hydraulic continuity with surface water in the Skagit River and perennial tributaries, shall be expressly subject to instream flows established in WAC 173-503-040 (1) through (3) as measured at the appropriate gage, and also subject to WAC 173-503-060.

(6) Future consumptive water rights issued to applications pending at the effective date of the regulation are superior in priority date but shall be conditioned on the instream flows established in WAC 173-503-040 (1) through (3). (RCW 90.03.247)

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-040, filed 3/14/01, effective 4/14/01.]

WAC 173-503-050 Water availability determination. (1) The department has made a determination that two hundred cubic feet per second is available to be appropriated through ground water withdrawal or surface water diversion for further instantaneous consumptive appropriation in the Lower and Upper Skagit watershed (WRIA 3 and 4). These waters are available for appropriation, subject to existing rights, exemptions in WAC 173-503-070, and instream flows in WAC 173-503-040(2). This determination was based upon review of existing water right records and existing water use, and is consistent with the findings section (WAC 173-503-030) of this regulation.

(2) The department advises that water rights issued to appropriate these waters determined to be available by this rule will be interruptible rights.

(3) After these instantaneous diversion or withdrawal of the 200 cfs quantities identified in subsection (1) of this section have been allocated by ecology, the Lower and Upper Skagit Watershed (WRIA 3 and 4) shall be withdrawn from further consumptive appropriations. This rule may be reopened to further consumptive appropriation only if further information demonstrates that such appropriations can be made consistent with the finding section (WAC 173-503-030) and the instream flow section (WAC 173-503-040). If further information demonstrates that the amount in the availability determination set forth in subsection (1) of this section should have been less than two hundred cubic feet per second, ecology will not be bound by the two hundred cubic feet per second number when processing individual water right applications.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-050, filed 3/14/01, effective 4/14/01.]

WAC 173-503-060 Ground water. If the department determines that there is hydraulic continuity between surface water and the proposed ground water source, a water right permit or certificate shall not be issued unless the department determines that withdrawal of ground water from the source aquifer would not interfere with stream flows during the period of stream closure or with maintenance of minimum instream flows. If such findings are made, then applications to appropriate public ground waters may be approved subject to the flows established in WAC 173-503-040(2).

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-060, filed 3/14/01, effective 4/14/01.]

WAC 173-503-070 Exemptions. (1) Nothing in this chapter shall affect existing water rights, including perfected

riparian rights, federal Indian and non-Indian reserved rights, or other appropriative rights existing on the effective date of this chapter, nor shall it affect existing rights relating to the operation of any hydroelectric or water storage reservoir or related facilities.

(2) Nonconsumptive uses which are compatible with the intent of this chapter may be approved.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-070, filed 3/14/01, effective 4/14/01.]

WAC 173-503-080 Policy statement for future permitting actions. (1) No rights to divert or store public surface waters of WRIA 3 and 4 which would conflict with the provisions of this chapter shall hereafter be granted, except as provided in RCW 90.54.020 (3)(a).

(2) Consistent with the provisions of chapter 90.54 RCW, it is the policy of the department to preserve an appropriate minimum instream flow in all perennial streams and rivers as well as the water levels in all lakes in the Lower and Upper Skagit watershed (WRIA 3 and 4) by encouraging the use of alternative sources of water which include:

(a) Reuse;

(b) Artificial recharge and recovery;

(c) Conservation; and

(d) Acquisition of existing water rights.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-080, filed 3/14/01, effective 4/14/01.]

WAC 173-503-090 Enforcement. In enforcement of this chapter, the department of ecology may impose such sanctions as appropriate under authorities vested in it, including, but not limited to, the issuance of regulatory orders under RCW 43.27A.190 and civil penalties under RCW 43.83B.335, 90.03.400, 90.03.410, 90.03.600, 90.44.120 and 90.44.130.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-090, filed 3/14/01, effective 4/14/01.]

WAC 173-503-100 Regulation review. Review of the rules in this chapter may be initiated by the department of ecology whenever new information is available, a change in conditions occurs, or statutory modifications are enacted that are determined by the department of ecology to require review.

[Statutory Authority: Chapters 90.54 and 90.22 RCW, and chapter 173-500 WAC. 01-07-027 (Order 99-05), § 173-503-100, filed 3/14/01, effective 4/14/01.]

Chapter 173-532 WAC

WATER RESOURCES PROGRAM FOR THE WALLA WALLA RIVER BASIN, WRIA-32

WAC

173-532-085 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

173-532-085 Prioritizing change and transfer applications. [Statutory Authority: Chapters 43.21A, 43.27A, 90.03, 90.44 and 90.54 RCW. 99-13-093 (Order 9823), § 173-532-085, filed 6/14/99, effective 7/15/99.] Repealed by 01-21-056 (Order 01-06), filed 10/16/01, effective 11/16/01. Statutory Authority: RCW 43.21A.080.

WAC 173-532-085 Repealed. See Disposition Table at beginning of this chapter.

Title 175 WAC

REVENUE, DEPARTMENT OF (ECONOMIC ASSISTANCE AUTHORITY)

Chapters

Chapter 175-08 WAC

UNIFORM PROCEDURAL RULES

WAC

175-08-010 through 175-08-990 Repealed.

DISPOSITION OF SECTIONS FORMERLY CODIFIED IN THIS CHAPTER

175-08-010 Uniform procedural rules. [Order 3940, § 175-08-010, filed 11/30/73.] Repealed by 01-13-074, filed 6/18/01, effective 7/19/01. Statutory Authority: RCW 82.32.300 and 43.21A.400.

175-08-990 Appendix A—Relating to chapter 117, Laws of 1972 1st ex. sess. as codified in chapter 43.31A RCW. [Order 3940, Appendix A (codified as WAC 175-08-990), filed 11/30/73.] Repealed by 01-13-074, filed 6/18/01, effective 7/19/01. Statutory Authority: RCW 82.32.300 and 43.21A.400.

WAC 175-08-010 through 175-08-990 Repealed. See Disposition Table at beginning of this chapter.